



DEFENSE TECHNICAL INFORMATION CENTER

Information for the Defense Community

DTIC® has determined on 08 / 18 / 2010 that this Technical Document has the Distribution Statement checked below. The current distribution for this document can be found in the DTIC® Technical Report Database.

☒ **DISTRIBUTION STATEMENT A.** Approved for public release; distribution is unlimited.

☐ **© COPYRIGHTED;** U.S. Government or Federal Rights License. All other rights and uses except those permitted by copyright law are reserved by the copyright owner.

☐ **DISTRIBUTION STATEMENT B.** Distribution authorized to U.S. Government agencies only (fill in reason) (date of determination). Other requests for this document shall be referred to (insert controlling DoD office)

☐ **DISTRIBUTION STATEMENT C.** Distribution authorized to U.S. Government Agencies and their contractors (fill in reason) (date of determination). Other requests for this document shall be referred to (insert controlling DoD office)

☐ **DISTRIBUTION STATEMENT D.** Distribution authorized to the Department of Defense and U.S. DoD contractors only (fill in reason) (date of determination). Other requests shall be referred to (insert controlling DoD office).

☐ **DISTRIBUTION STATEMENT E.** Distribution authorized to DoD Components only (fill in reason) (date of determination). Other requests shall be referred to (insert controlling DoD office).

☐ **DISTRIBUTION STATEMENT F.** Further dissemination only as directed by (inserting controlling DoD office) (date of determination) or higher DoD authority.

Distribution Statement F is also used when a document does not contain a distribution statement and no distribution statement can be determined.

☐ **DISTRIBUTION STATEMENT X.** Distribution authorized to U.S. Government Agencies and private individuals or enterprises eligible to obtain export-controlled technical data in accordance with DoDD 5230.25; (date of determination). DoD Controlling Office is (insert controlling DoD office).

STUDENT THESIS

THIS PAPER IS AN INDIVIDUAL EFFORT ON THE PART OF A STUDENT AT THE US ARMY WAR COLLEGE. IT IS FURNISHED WITHOUT COMMENT BY THE COLLEGE FOR SUCH BENEFIT TO THE USER AS MAY ACCRUE.

8 April 1966

ESTABLISHMENT OF LINES OF COMMUNICATIONS - - LIFELINES TO COMBAT OPERATIONS

By

LIBRARY

SEP 27 1966

U. S. ARMY WAR COLLEGE

LEONARD A. CROSBY

Colonel, Medical Service Corps



REPRODUCTION OF THIS DOCUMENT IN WHOLE OR IN PART IS PROHIBITED EXCEPT WITH PERMISSION OF THE COMMANDANT, US ARMY WAR COLLEGE.

US ARMY WAR COLLEGE, CARLISLE BARRACKS, PENNSYLVANIA

AWC LOG #

66-4-16 U

Copy No. 1 of 8 Copies

USAWC RESEARCH ELEMENT
(Thesis)

Establishment of Lines of Communications--
Lifelines to Combat Operations

by

Colonel Leonard A. Crosby
Medical Service Corps

US Army War College
Carlisle Barracks, Pennsylvania
8 April 1966

TABLE OF CONTENTS

	Page
SUMMARY	iii
CHAPTER 1. INTRODUCTION	1
2. THE NATURE OF THE PROBLEM -- BACKGROUND . . .	7
Introduction	7
Logistical characteristics	10
Definitions	11
Logistical awareness	13
World War I experience	16
Progress between wars	18
World War II - the Pacific	19
World War II - Europe	20
The problem today	23
Summary	26
3. THE PRESENT STATE OF THE ART	28
Introduction	28
The planning process	29
Application by the US Navy	32
The need for proper planning	35
Summary	37
4. LOGISTICAL PLANNING FOR UNDERDEVELOPED AREAS	39
Introduction	39
Possible military actions	40
Logistical considerations	41
The Lebanon action	49
Dominican Republic	53
Summary	56
5. OPERATIONS IN THE FUTURE	59
Introduction	59
The combat environment	62
Establishment of lines of communications . .	64
The underdeveloped areas	73
Summary	75
6. CONCLUSIONS	77
BIBLIOGRAPHY	85

SUMMARY

In the face of the modern facts of military economics, and with the obvious need for our military forces to be able to deal effectively with a variety of situations, it is important to examine the basic fundamentals of logistic support in light of its objective of creating and sustaining combat forces. Logistics is the bridge between the national economy and the operation of combat forces. Thus, in its economic sense it limits the combat forces which can be created; and in its operational sense it limits the forces which can be employed.

Thus, strategy and tactics are always limited and at times are determined by logistic factors. Obviously, therefore, in order to support the combat requirements of strategy and tactics the objective of all logistic effort must be the attainment of sustained combat effectiveness in operating forces. It is the purpose of this thesis to examine our ability to support combat forces in oversea areas by the development of support bases and establishing the supporting lines of communications which are the lifelines of combat operations.

An examination of history indicates that the United States has become involved in military actions with inadequate concepts of the magnitude of the logistical task and have underestimated the proportion of resources which should be devoted to logistic forces. The subsequent readjustments frequently resulted in "snowballing" or to grow out of all proportion to the tactical forces which they were designed to support. The root of the problem appears to lie in two basically different concepts of the conduct of campaigns. One was that all strategic planning should be based upon the development of a solid, flexible, logistical base and that the development and operations of such a base required the same degree of skill and access to high command thinking as did the tactical planning. The other concept has never been clearly and openly expressed but in effect it seemed to imply that logistic planning and operations were secondary military activities which ambitious technical specialists were trying to inflate for purposes of "empire building."

In war, as in other competitive activities, success can only follow forethought. At all levels of an organization it is necessary to guide events--and not to let things "just happen" as a result of intuition, lest intuition run out of tools wherewith to accomplish its aims. Therefore, the present planning process for base development is reviewed. In the US armed forces today there are elaborate and detailed planning procedures. However, in time of crisis officers in responsible positions may be forced to make quick and decisive departures from the normal routines.

Since World War II, the United States has become progressively more deeply involved in the affairs of the underdeveloped nations and has accepted free world leadership in efforts to prevent the spread of communism and maintain peace and stability. The decision to commit US forces into the underdeveloped areas may come with little warning. Therefore, the logistic system must be ready to respond rapidly to provide support in these areas.

The study of the lessons of the past has value only as it provides guidance for the future. While no one can accurately predict what the future will bring, it is nevertheless important to note the general trends which assist in predicting the future. Only by doing so can reasonable plans be made concerning the anticipated combat action and the attending support requirements.

This thesis is designed to review our capability to support our combat forces, establish oversea bases and project lines of communications, point out some of the mistakes made in the past, suggest methods of logistic support to accomplish the mission in underdeveloped areas, consider the nuclear environment, and suggest improvements for future war.

CHAPTER 1

INTRODUCTION

At the end of World War II, the United States had hopes that the complex and perplexing political problems of the world could be resolved through conferences and negotiations. By 1947, however, it was obvious to the United States that her major postwar strategy had to be containment of the Communist powers, which had clearly announced plans for world hegemony.¹

Prior to World War II, the permanent deployment of armed forces overseas was restricted to American territory--in Puerto Rico, Virgin Islands, Alaska, Guam, Hawaii and the Philippines--except for the leased naval base at Guantanamo and installations in the Panama Canal Zone, and with the foreign legation in China. This relatively small overseas deployment reflected our traditional foreign policy of isolationism.²

In 1940, however, demands of national security forced the United States to take a firm step toward development of the present extensive system of overseas military bases. The rising evidence of Communist aggressive and expansive tendencies, the great disparity between United States power and the power of allies, and the underlying awareness of the suicidal consequences of retreating to "Fortress

¹Towsend Hoops, "Overseas Bases in American Strategy," Foreign Affairs, Vol. 37, Oct. 1958, p. 63.

²Ibid., p. 66.

America" soon made plain a continuing need for foreign bases together with attendant overseas deployment of forces.³

The rapid development of bases and overseas deployment since 1949 proceeded from the need to assure the effectiveness of our strategic nuclear air capability and comply with our NATO commitments.⁴

The United States had by 1954 obtained base agreements with eight countries in Europe and Africa and four in the Pacific-Asian area. These were reasonably adequate to support our objective of containment. In 1955, however, as we urged and supported the formation of the "Baghdad Pact," the Soviets launched a major economic offensive in the Middle East which was successful in preventing a further expansion of the United States advance base system in that area.⁵ To a degree, our current defense posture from the Mediterranean to the South China Sea is relatively unimpressive as a result.

In addition to the rising threat of the Communist powers, the emergence of so many economically underdeveloped nations to twentieth century statehood began to present new challenges. The military, economic and social weaknesses of these new states revived the power conflict between the world's major powers, competing for influence in the many turbulent and unsettled areas of the world.⁶

³Ibid., p. 69.

⁴Ibid., p. 71.

⁵Edward F. Dissette, "Overseas Bases - How Long for This World?," US Naval Institute Proceedings, Vol. 86, Jul. 1960, p. 27.

⁶W. W. Rostow, "The Role of Emerging Nations in World Politics," Department of State Bulletin, Vol. LII, 5 Apr. 1965, p. 493.

The responses of American foreign policy to this situation are well known. Outstanding among them have been the Marshall Plan, the Point Four Program, and the extraordinary network of alliances by which the United States has attempted to guarantee, and increase the strength of, the non-Communist world. It is characteristic of nations that they design their postwar policies to correct the mistakes that led up to the last war. To this general rule the United States has proved at least a partial exception. In a relatively short time it surrendered the dream of a peaceful international society governed by the institutions of the United Nations. In their place it substituted American leadership and, in less than ten years, commitments to the security of forty-two nations.⁷ In effect the United States now provided the first line of defense against the incursions and depredations of the Communist world.

This new role placed a heavy and unfamiliar burden upon the American defense establishment. Heretofore, the tasks of the armed forces in peacetime had been primarily to maintain cadres of trained officers and men, to engage in mobilization planning, develop prototypes of the weapons they would like to order in quantity, and try to foresee the circumstances and places in which they would be called on to fight. Each service had had a capability in being, especially the navy, but these forces were rarely expected to become involved in major military operations until after America's friends had been

⁷Henry F. Eccles, Logistics in the National Defense, p. 5.

precipitated into a war.⁸ This meant not only that American mobilization plans could be put into effect after the outbreak of conflict, but also that the services could study and adopt the weapons, strategy, and tactics of friend and enemy alike. It meant, further, that they could correct many of their own mistakes before they went into combat. Now all this had changed. Contingency plans might have to be executed, forces in being might have to be used without a period of grace for mobilization. Weapons in the inventory were certain to be the ones that would be fired in anger.⁹ The old days, in which the United States could act as the second line of defense, seemingly had gone forever.

These then are the major challenges facing the logistic support of our combat forces today.

First, our network of advanced bases are not adequate and, in addition, they have placed a burden on our forces for, in some instances our treaty arrangements have committed us to certain obligations. Our forces located on these bases are responsible for the defense of the respective host countries against any aggressor. The treaties with Japan, Korea, the Philippines, and the Republic of China are of this kind.¹⁰ They also involve defense assistance in the form of military supply and training to modernize the armed forces of the host countries. Other agreements involve providing economic aid.

⁸William W. Kaufmann, The McNamara Strategy, p. 5.

⁹Ibid., p. 9.

¹⁰US Dept of State, American Foreign Policy 1950-1955. Basic Documents, Vol. 1, Jul. 1957, pp. 885, 897 and 945.

Each of these makes rapid redeployment of logistic forces and supplies to support contingency operations or to rapidly establish a new base to support a sublimited or limited war, rather difficult.

Second, the existence of so many economically underdeveloped nations, no longer under the protection of a great power, has increased the areas of potential conflict. Many of these nations are highly vulnerable to insurgency and are poorly prepared to cope with it.¹¹ The logistics support provided to United States combat forces committed to many of these areas will have no national infrastructure to use and few local resources it can use to ease the logistical burden. Logistical problems will arise the moment the first combat force lands and will increase each day the operation lasts.

Third, the demand for rapid response in the increasingly wide variety of objective areas with forces, supplies and materiel already in being.

Each of these challenges requires the logistic planner to face grave uncertainties about the kind of war he may be called on to support. At least for the present it appears that the most likely kind of war will be a so-called "conventional" war without the use of nuclear weapons. However, our combat and logistical forces must be prepared to stand on high alert, deploy overseas, face crises, make demonstrations, and engage in instant combat, all in the shadow of the nuclear holocaust.

¹¹US Army War College, Strategic Implications of the Developing Areas, Directive, Course 4, p. 15.

This thesis begins by exploring the background experiences in logistical support to define our problems in reacting to the new challenges more effectively. Next, a review of the current system of base development planning is made to determine if the system is sound. In view of the many new underdeveloped areas of the world a look is given at logistic planning to support combat forces in these areas. Finally, the nature of future war is considered and overall conclusions concerning establishing lines of communications are drawn.

It must be admitted at the outset that some latitude has been taken within the title of this thesis. It is not intended to go into small detail on how to establish a line of communications. To do so would require a detailed account of how to organize, train, equip and deploy the many hundreds of logistic and administrative support elements involved. These technical aspects are so vast and complicated that they would obscure the main issues and principles. Therefore, emphasis has been placed on the broad aspects of the subject as providing the perspective by which the complexity of technical details can be penetrated and the major factors brought into focus.

CHAPTER 2

THE NATURE OF THE PROBLEM - BACKGROUND

INTRODUCTION

Many learned writers have stated that ours is an era of rapid change. The weapons, techniques, tactics, and even strategy of today are all too often obsolescent tomorrow. Because of this, it has become fashionable for our military and civilian leaders to stress the need for a more "progressive attitude" toward future war. But more often than not, the "progressive attitude" advocated was strongly colored by the doctrines of Karl Von Clausewitz, whose teachings dominated European military thought during the last quarter of the nineteenth century.¹ Military thought, in short, has clung to two characteristically Clausewitzian ideas: that the primary function of the soldier is to use the tools of war in combat, not to fashion or provide them; and that material forces have not yet diminished the classic and decisive role of courage, leadership, and the arts of command. The development of warfare has subjected both these principles to considerable strain. The once clear distinction between the use of, and the providing of weapons has been virtually eliminated, and modern war engages more soldiers in the latter task

¹Dallas D. Irvin, "The French Discovery of Clausewitz and Napoleon," in The Journal of the American Military Institute, Vol. IV, Fall 1940, pp. 144-145.

than the former. Courage and leadership are steadily losing the power to override heavy material odds.² The Clausewitzian conception of logistics, in its pure form, is clearly unsuited to the conditions of modern warfare. It remains to be seen whether it can continue to adapt itself to a revolution of warfare, still underway, or whether it will be replaced by a radically new approach.³

Modern warfare, even in the missile and nuclear age, continues to require the movement and maintenance of large numbers of personnel and enormous quantities of supplies over great distances. Modern warfare involves the use of weapons and equipment of extreme mobility and striking power. Yet, modern warfare is fought in general accordance with the same basic principles of war that have governed military operations from the time the first armies roamed through Asia and Europe.⁴ Hence, provision must be made for handling the supplies and personnel, and for maintenance of the speed and striking power of the weapons and equipment, in accordance with certain logistical principles that are closely related to the pertinent principles of war. Strategy, tactics and logistics must be coordinated and kept in balance. This coordination is possible of accomplishment only under circumstances that permit logistical flexibility, continuity, simplicity and economy. Therefore, in considering the problem of

²Global Logistics and Strategy; US Army in World War II, pp. 8-10.

³Ibid., p. 11.

⁴William B. Bunker, "The Importance of Transportation as a Function of the Logistics Equation," in National Defense Transportation Journal, Vol. XLII, Jan.-Feb. 1958, p. 42.

how the army should organize and fight, the increased emphasis on mobility, dispersion, and long-range weapons accentuates the importance of logistics, and the logistical problems that must be solved.

One writer has highlighted the problem as follows:

The nature of any war which might occur in the 60's or 70's cannot be predicted in detail. Obvious though this fact is, its significance is not always understood. It means that the logistics system must be prepared to support any of the many kinds of wars, and it follows that the preparations made for a kind of war which does not in fact occur, will subsequently appear largely as wasted effort. This uncertainty in looking forward, and the waste which will appear with hindsight, are two of the facts of life which harass the logistician, as indeed any military planner.⁵

Thus, the profound and continuous changes in the threat facing us these days indicate that survival in the future is much more dependent upon being "ready" than upon a capability for rapid conversion from a peace to a "ready" state.

A large part of being "ready" lies in the ability of the military logistics system of a nation to support its military forces. A failure or breakdown in any part of the logistic system results in the slowing down or reduction in size of the stream of supplies and services which is the lifeblood of the armed forces.⁶

Extensive, and it is to be hoped, adequate, plans are in being to mobilize our civilian production base to furnish military requirements

⁵Allen R. Ferguson, Air Force Logistics - Some Recent Developments, 5 Nov. 1956, pp. 2-3.

⁶Carter B. Magruder, The Program of the Deputy Chief of Staff for Logistics, 27 May 1959, p. 5.

in time of war. Plans also exist which will permit the movement of these vitally needed supplies to oversea areas where they are used.⁷ The forces overseas continually work to improve the "field" supply and distribution systems upon which they depend. There is, however, a gap in the logistic system which may well keep it from functioning effectively and which may lead to its breakdown. This wide gap lies in that area of military operations between the production base which makes and pushes the materiel to an oversea area and the more forward, mobile, "field" support system.

LOGISTICAL CHARACTERISTICS

History provides many examples of failure of military operations because of inadequate support of its fighting elements. Often these failures were the result of attempts to fight over excessive distances from an established support base, depending on long, unprotected, inadequately manned, poorly planned lines of communications.

There are certain aspects of a logistic system which must be recognized, accepted and planned for. There are and will always be, great variations in the rate of production and the rate of consumption. There is no human or mechanical method to bring these two factors into balance accurately. Also, it is impossible to transport military needs in a constant, steady flow from the producer to the user. The system is constantly subject to weather and environmental

⁷Norman Meyer, Personal interview, 8 Dec. 1965.

conditions, destruction and interruption from the enemy, and perhaps the worst of the lot, human error, misuse, greed and waste.⁸

As these aspects have never been and perhaps never will be eliminated, the support system must provide for certain reservoirs to insure against failure in prompt and adequate support. These reservoirs, at the present time, take many forms: depots in the continental United States; collection and storage points in rear of continental ports and shipping points; prestocks of supplies and equipment in strategic areas overseas; depots in oversea areas; supply points near the fighting zones; and what the fighting unit and the individual can carry. Each part of this system of reservoirs has its place, and the wars of the future will see little change in them. True, the amount and type of support in each will change, the physical location may change, and some consolidation will be possible; but on the whole the echelons of reserves will continue to be used. Because of this, oversea bases and lines of communications to and from these bases will continue to be required.⁹

DEFINITIONS

Much of the strategy of wars is the strategy of bases, i.e., the seizure of or negotiation for areas in which bases and lines of communications can be developed to permit military operations against

⁸Williston B. Palmer, "Commanders Must Know Logistics," Army Information Digest, Vol. 8, Dec. 1954, p. 5.

⁹"Assets or Liabilities?," The Cincinnati Enquirer, 13 Jul. 1960, p. 4.

the enemy.¹⁰ Experience in World War II, Korea and Vietnam, indeed throughout American history, has proved the need for such bases if a major blow is struck at the enemy.¹¹ Since lines of communications are by definition, a part of bases, they must be considered as a single entity. This is expressed in current Army Regulations as:¹²

1. Lines of communications (logistics) (ESN, J., A.): All the routes, land, water and air, which connect an operating military force with a base of operations along which supplies and reinforcements move (same as logistic routes).

2. Base (ESN, J., A.): An area or locality containing installations which provide logistic or other support.

3. Base development (ESN, J., A.): The improvement or expansion of the resources and facilities of an area or a location to support military operations.

4. Base command (ESN, FSN, J., A.): An area containing an air, military or naval base or group of such bases organized under one commander.

Napoleon defined the line of communications in the following terms:

I intend by the line of communications, the one on which are situated the hospitals, the reliefs for the sick, the munitions of war, the supplies; where an army can

¹⁰George Weller, Bases Overseas, pp. 12-32.

¹¹Ibid., pp. 50-54.

¹²US Dept of the Army, Army Regulations 320-5: Dictionary of United States Army Terms (Short Title: AD), Apr. 1965.

reorganize itself, recover, and, after a couple of days rest, regain its morale, lost by an unforeseen accident.¹³

There are, perhaps, other definitions which may be used but basically, as Clausewitz has stated:

The roads which lead from the position of an army to those points in its rear at which its sources of subsistence and refitment are chiefly concentrated, and which in all ordinary cases it chooses for its retreat, have a double purpose. In the first place they are its lines of communication for the constant sustenance of the forces and, next, they are lines of retreat.¹⁴

While these two purposes were not generally accepted or practiced in World Wars I and II, they definitely were in Korea, are now in Vietnam, and were the very basis for the establishment of the present lines of communications across France for the support of the United States forces in France and Germany.¹⁵

LOGISTICAL AWARENESS

From this brief discussion it becomes patently clear that commanders of large forces, when faced with the situation of employing those forces in an active military campaign, have always, sooner or later, experienced the need for supporting bases located near the military action with lines of communications to and from the base.¹⁶ However, in many instances little or no prior planning had been done

¹³George Furse, The Organization and Administration of the Lines of Communications, p. 6.

¹⁴Karl Von Clausewitz, On War, p. 304.

¹⁵Establishment of Lines of Communications Across France 1950-1951 (U), US Army, Europe, Historical Report, Aug. 1952, p. 12.

SECRET

¹⁶Weller, op. cit., p. 45.

to satisfy this requirement. The rather interesting factor in the previous statement is that in few instances can one discover where a major commander was unaware of the need for such planning; rather he just ignored the requirement, perhaps in his absorption with tactical operations.¹⁷

There are many historical examples which may be cited where commanders, at least for a time, were quite aware of the need to establish effective lines of communications to support the military effort. Napoleon, when preparing for his invasion of Russia, was so impressed by the need to support his forces that, although his army was assembled on the Vistula by the end of October 1811, he delayed the war by diplomatic negotiations until the summer of the following year. In the meantime he collected a vast amount of provisions, organized his means of transport, and waited till the green forage could feed his horses. After his columns had crossed the Russian frontier, he remained at Wilna for sixteen days to improve his arrangements with regard to transport and provisions, which had not been satisfactory.¹⁸ Notwithstanding these prior plans, the disasters which Napoleon experienced in 1812 have been ascribed to his having neglected the great principle of the base.¹⁹ Between him at Moscow and Smolensk his single line of communications, about 250

¹⁷Global Logistics and Strategy; US Army in World War II, p. 435.

¹⁸L. C. Breed, Opinions and Reflections of Napoleon, p. 182.

¹⁹Furse, op. cit., p. 7.

miles long, had no point of support whatsoever. Between Smolensk and Wilna it was menaced on either flank by the corps of Wittgenstein and Tschitchagoff.²⁰

While this great commander was fully aware of the need to support his forces, and made elaborate plans to gather a stockpile of supplies and equipment prior to initiating active military operations, his plans did not provide for the security of his line of communications from his base to his forces. This lesson in history was to be learned again by the Germans in their attack across Russia in World War II.²¹

In more modern times, General Eisenhower wrote concerning the events following the Pearl Harbor attack:

On December 22, when the Pensacola convoy arrived at Brisbane, we began the establishment of our Australian base. This quick start was largely the result of accident. On the day of the Pearl Harbor attack, numbers of our ships were enroute to the Philippines with troops, planes and supplies. The Navy counseled that they be ordered to return to the United States or seek refuge in Hawaii, since no one could be sure that the Japanese would not set up an interceptive net for them. Those only a few days out of port did return. But the War Department insisted that one convoy of five ships-- the Holbrook, and the Republic, with 5,000 troops aboard, and the Meigs, Holstead and Bloemfontein, loaded with equipment and supplies be ordered to proceed with all possible speed to Australia. This was the beginning of the great base that was eventually to be General MacArthur's launching platform for the liberation of the Philippines.²²

²⁰Ibid., p. 8.

²¹Rafael Lubotnik, "The Last Cavalry Charge," Military Review, Vol. XLVI, Jan. 1966, p. 18.

²²Dwight D. Eisenhower, Crusade in Europe, pp. 22-23.

The statement that the quick start in beginning the establishment of a base to support a military campaign was largely the result of an accident is significant in view of past experiences. United States naval operations as early as the Spanish-American War emphasized the importance of advanced bases in global war. The seizure of a suitable base at Guantanamo by a battalion of marines attached to Sampson's fleet greatly facilitated fleet operations in that area, and indicated the advantage of having available specially trained naval landing forces for that purpose. Although the merit of making such a force a part of the fleet was still not accepted, this experience did lead to the organization of a Marine Corps Advanced Base Force in 1910.²³

WORLD WAR I EXPERIENCE

During World War I, the development of bases and establishing lines of communications were characterized by two significant factors. One involved the fact that prior to this war the United States had operated on the assumption that war must be fought in our own country, or at least not outside the Western Hemisphere; that the war would be based on our own resources; and that the war would be supported by using the railway system of the United States.²⁴ For example: the army's Field Service Regulations of 1914 were supposed to have reflected our Civil War experience but when Colonels William D. Connor and James A. Logan were given the task of preparing these

²³"The New Role of Amphibious Power - Amphibious Warfare in the Nuclear Age," Army Information Digest, Vol. 16, Jul. 1961, pp. 18-20.

²⁴James G. Harbord, The American Army in France, pp. 57-65.

regulations they found nothing available on the supply and transport system used in that war. Since Colonel Logan had just taken the course at the French School of Intendance and was familiar with the support system taught there, these officers based their work entirely on the French teachings. As this instruction was based on using interior lines of communications flowing from the production base provided by national infrastructure, no plans for the establishment of oversea bases were included.²⁵

The second factor involved was that upon arrival in France of the advance parties of the AEF, the specific ports, storage areas, roads and rail nets allocated the American forces for use were dictated in advance. This was necessary as the French and British had been fighting for three years and America's entry could not interrupt an already established system.²⁶

Not only had the United States no plan for the development of bases to support military operations, but nothing like the World War I Services of Supply (SOS) for the support of combat troops existed in our army before the war. Through a trial and error method, the entire system of logistics from producer to consumer developed. Only through the heavy reliance upon our allies were our field forces supplied and equipped.²⁷ Concerning this situation, General Harbord, then the

²⁵Ibid., p. 72.

²⁶Ibid., p. 75.

²⁷Ibid., p. 88.

Commander of the Services of Supply wrote: "By the grace of God the Armistice of November 11, 1918, ameliorated the situation."²⁸

PROGRESS BETWEEN WARS

Little or no planning for the development of oversea bases and their lines of communications was advanced between World Wars I and II. Our principal oversea bases were settled outposts with tiny garrisons and few logistical problems. The bases that did exist relied heavily upon local resources, and shipments from the United States were small. Planning for these oversea bases followed the same sequence and considered the same factors as bases established in the United States. The peacetime pattern of development was designed to provide for permanent installations. When a site was chosen and the nature of the installation finally decided upon, the normal procedure was to enter into a contract with a private construction firm. Time for construction and development was, therefore, only an economic consideration.²⁹

The more modern concept of base development may be said to have had its birth in the Hepburn Board Report, which was the result of a special board appointed by the Secretary of the Navy to "investigate and report upon the need for the establishment of additional naval bases on the coasts of the United States, its territories and its

²⁸Ibid., p. 92.

²⁹US Armed Forces Staff College, "Base Development for Joint Forces," AFSC Pub 6, Aug. 1964, p. 15.

possessions."³⁰ As this was a uniservice report, it was only considered as a basis for planning and not taken seriously. Later, especially in the early stages of World War II, the staffs assigned the task of establishing oversea bases and lines of communications had never seen and only vaguely heard of this report or of any prior plans in this area.³¹

WORLD WAR II - THE PACIFIC

In the Southwest Pacific Area, during the early part of World War II, theater headquarters issued a brief directive describing the base development to be accomplished for each operation. Preparation of detailed plans and the requisitioning of troops and materiel to accomplish the plans was made the responsibility of subordinate headquarters (6th and 8th Armies, 5th Air Force, 7th Fleet and the SOS). These organizations were also responsible for the execution of the base development missions.³² As time passed, these brief theater directives proved inadequate as they did not provide sufficient guidance and required an inordinate amount of coordination which consumed vital time. In order to improve this situation, theater headquarters organized planning agencies (Army Service Commands (ASCOM's)) in advance of prospective operations for the purpose of preparing detailed plans for base development in each objective area.

³⁰Ibid., p. 19.

³¹Ibid., p. 23.

³²Ibid., p. 28.

Planning personnel moved into the objective area as soon as practicable after the initial assault to supervise the execution of the plans they had prepared. The ASCOM commander was responsible for coordination of army and navy base development, but he was not responsible for execution of the navy development. As a result, duplication at the cost of critical materiel, personnel and construction effort resulted.³³

WORLD WAR II - EUROPE

In the European Theater of Operations, the base development planning procedure was not well defined, but worked somewhat as follows: Theater headquarters prepared studies or "appreciations," which formed a basis for determining general base development requirements. Theater headquarters then issued directives to subordinate headquarters assigning responsibilities for planning and execution of the various base development missions, with broad limitations as to scope, target dates and use of troops. The subordinate headquarters coordinated their planning efforts and developed detailed programs or "projects" for elements of the theater directives. No overall plan was issued, but the "projects" were used for guidance and proved adequate for requisitioning materiel.³⁴

The detailed plans for the subsequent North African operation, which called for landings at Algiers, Oren and Casablanca, were late

³³Ibid., p. 31.

³⁴Ibid., p. 43.

in being developed. In late August 1942, when outline plans finally became available, units that were to be equipped by early September were still being activated. Time and space dictated a change in target date from 1 October to early November. The execution of plans proceeded along with, and at times, in advance of, the development of plans.

After capturing initial objectives, the Eastern Task Force, composed of British and United States forces, turned east to Tunisia. Because of lack of adequate ports and road and rail equipment, the Task Force quickly outraced its support. Railroads were single track and had little useable rolling stock. In order to expand the line of communications to support the final assault on Tunisia, the Allies sent a rush shipment of over 225 thousand ship-tons of equipment, including over 5000 vehicles to North Africa.³⁵

The North African campaign again emphasized the dependence of combat forces upon the capacity of their lines of communications. Placing early emphasis upon maximum quantities of combat troops without adequate support was faulty. Only after correcting this fault was it possible for the campaign to be pressed to its successful conclusion. General Bradley wrote: "For in the assignment of forces to a sector on the front, an army is limited by its ability to support them over existing roads and rail lines. Thus logistics become the critical determinant in any tactical plan."³⁶ Unfortunately, while

³⁵Eisenhower, op. cit., p. 53.

³⁶Omar N. Bradley, Soldiers Story, Jun. 1964, p. 50.

fully appreciating the limitations imposed by logistics, General Bradley rarely changed his tactical plan because of logistical problems. He states, "A timid G-4 could directly restrict the scope of his commander's operations. And similarly a resourceful G-4 could expand it. Fortunately, my G-4's were always resourceful."³⁷ The student of logistics will define this resourcefulness as a need to improvise. The ability to improvise, of course, is a priceless requirement, but improvisation on a large scale is more indicative of poor planning and lack of forethought than it is of inventive genius. Large-scale improvisation is always expensive.

After the occupation of Sicily and the invasion of Italy, not enough troops, equipment or shipping was available to accelerate the needed buildup in England, to supply the minimum needs of the Pacific, and to support an overwhelming force in Italy. US commanders then considered that an important strategic decision would not be made in Italy and forces were withdrawn and sent to England for the invasion of France. This action strongly influenced the capabilities of the Mediterranean Theater and resulted in the long drawn-out campaign which finally ended in May 1945.³⁸

In England, plans for the cross-channel invasion called for the prompt seizure of ports in western France. These did not become available as early as planned and additional combat forces were

³⁷Ibid., p. 52.

³⁸US Armed Forces Staff College, "Base Development for Joint Forces," AFSC Pub 6, Aug. 1964, p. 52.

brought in to move the Allied line forward. As a result, service forces for developing the base and supporting lines of communications were not brought in and the planned buildup of supplies was not accomplished. Later the tactical success achieved at Saint-Lo prompted the Allies to rapidly pursue the enemy and destroy him in France. Here the phase-back of service forces and supplies was decisive. The line of communications rapidly stretched beyond its capacity and the Allied forces ground to a halt.³⁹

THE PROBLEM TODAY

No problem presents more difficulty than trying to determine in advance the most efficient balance of logistical resources and combat forces that will be needed for any campaign. In commenting on this aspect an Army historian says:

Perhaps the general problem from which it was most difficult to draw definite conclusions was the question of personnel to perform all the logistical functions needed. It has become common to make the ratio of combat troops to service troops the measure of efficiency in the Army. By itself this ratio may mean nothing. The important factor is the total amount of effective firepower which can be brought to bear against the enemy. If the greatest total of effective power can be delivered with one combat man for each service man, then this is the desirable ratio; but if 1,000 service troops for one combat man is needed to achieve that maximum, then that is the desirable ratio.⁴⁰

³⁹Ibid., p. 61.

⁴⁰James A. Houston, "Korea and Logistics," Military Review, Feb. 1957.

Over the long range it may seem easier to build up logistic support forces than it is to build up combat forces because the training of personnel is not so difficult and the procurement of equipment is usually easier. The reason for this is that many logistic operations closely resemble industrial operations, and consequently the conversion in most cases is relatively simple. However, this apparent differential in ease of buildup should not blind us to the need for carefully planning conversion from peace to war and for allowing adequate lead time for its accomplishment. To take a buildup for granted is folly. Furthermore, the increasing automation of weapons makes the training of the supporting logistical support technicians a critical factor. However, the balance of logistic forces and combat forces at the beginning of war is another matter. In the initial stage of a sudden war the emergency conversions are of little help. At this time fully trained and equipped logistic forces must be available, properly disposed and in adequate numbers to render immediate sustained support to the combat forces in being. A combat force with inadequate logistic support is ineffectual and represents a waste of effort.

A look at Vietnam indicates that US planners were caught short when in July 1965 the President announced the greatly increased commitment of US combat forces to South Vietnam. On 6 December 1965, Newsweek in a cover story reports Department of Defense pride in deploying 165,000 men to Vietnam "without having called up a single man from the reserves." This is quite an accomplishment.

But it must be added that (1) history may make a more brutally critical finding, and (2) it has been done at high cost to the integrity of the US continental reserve in being, especially the army.

It is doubtful if more than half of the six Army divisions in the United States today are at full deployable strength. The 82d Airborne Division has from 5 to 8,000 men tied down in the Dominican Republic and is also scheduled to furnish some 1,700 replacements to Vietnam. The 101st Airborne Division has one brigade in Vietnam which will not be replaced for some months by one of the new brigades in the process of formation. The same is true of the 25th Infantry Division.

From the logistic support standpoint, this rapid buildup of combat forces has presented many problems. Bases are being constructed on a "crash" basis using army Engineers, navy Seabees and civilian construction workers.⁴¹ They are all engaged in constructing ports, airfields, and support facilities at Camranh Bay, Saigon, Qui Nhon, Nha Trang, Vinh Tau and elsewhere. Construction jobs include the building of roads, airstrips, ammunition storage facilities, barracks, hospitals and warehouses. Railroads are repaired and bridges are rebuilt. But to provide this effort to establish a support complex for the combat forces, fifteen percent of the total strength in Vietnam are army Engineers and the navy has four Seabee battalions at work.⁴² However, the amount of tonnage shipped to Vietnam had reached the rate of 725,000 measured tons per month in

⁴¹"Front and Center," Army, Vol. 16, Jan. 1966, pp. 10-26.

⁴²Ibid., p. 22.

September 1965. Until the new ports are completed this tonnage cannot be unloaded in Vietnam and must go to bases in Guam, Okinawa, Japan, Korea and the Philippines. In Vietnam there have been allegations that some freighters are held up for weeks. One vessel is reported to have waited for 79 days for discharge.⁴³ Despite an increase in airlift, at least 98 percent of all shipments is carried in surface vessels.⁴⁴

SUMMARY

From the foregoing we can see that the way of planning has many pitfalls; it cannot be charted precisely in advance but can be found only through the wisdom of professional judgment. The full development of that judgment requires understanding of the fundamentals of integrated planning of accurate and timely information and of careful programming.

Logistic plans are so vital--so ambient--so all-pervasive that they can be considered to be the common denominator of all plans. If any military plan is to be realistic, logistic considerations and logistic plans must be interwoven with national, strategic and tactical plans at all levels of command.

Each responsible individual must study the situation which faces him--and which might face him. He must weigh possible courses of

⁴³Ibid., p. 23.

⁴⁴Ibid.

action open to him and he must consider his courses of action as to suitability, feasibility and acceptability or consequences as to cost.

The next chapter will examine the planning process as presently prescribed in service regulations.

CHAPTER 3

THE PRESENT STATE OF THE ART

INTRODUCTION

Victory is won or lost in battle, but all military history shows that adequate logistic support is essential to the winning of battles.

In World War II, logistic support of the fleet in the Pacific became a problem of such magnitude and diversity, as well as vital necessity, that all operations against Japan hinged upon it. The advance against the enemy moved our fleet progressively further and further away from the west coast of the United States, from Pearl Harbor, and from other sources of supply. To support our fleet we constructed temporary bases for various uses, and we formed mobile service squadrons and other logistic support groups. These floating organizations remained near the fighting fleet, supplying food, ammunition, and other necessities while rendering repair services close to the combat areas. This support enabled the fleet to keep unrelenting pressure upon the enemy by obviating the return of the fleet to home bases.¹

From such statements, it is apparent that the lessons of support were well taught in the past. But how well they were learned is another problem. While it is trite to reiterate that the primary function of a peacetime force under the American military concept is to develop, test and refine the doctrines, techniques and policies for its wartime mission, it is equally obvious that peacetime problems have repeatedly led us to establish patterns which we have to desert when war did come. A great deal of this problem has been

¹Dan A. Kimball, in the introduction to Beans, Bullets and Black Oil, by Warrell R. Carter.

dismissed under the blanket--and untrue--assumption, that a peacetime military organization must be operated as economically as possible, while a fighting force faces no such limitation. More often this confusion arises from a failure to evaluate the impact of war on the interrelated factors of a balanced equation.²

THE PLANNING PROCESS

In general, the Department of Defense has stated that base development planning is one of the many functions required in the implementation of National Policy. This policy is converted into military strategic guidance promulgated from the Joint Chiefs of Staff to Unified and Specified Commands. Based on the guidance, each military service receives recommendations from the component commanders, consolidates requirements and after coordination with the other services, submits a list of bases, installations, and primary facilities, existing or contemplated, with priorities for development, to the Joint Chiefs of Staff. These recommendations, and the recommendations of the Unified and Specified Commands, are consolidated by the Joint Staff. The Joint Chiefs of Staff then specifically approve the type facility, its location, and whether it is required pre- or post-D-day. The approved list is then

²William B. Bunker, "The Importance of Transportation as a Function of the Logistics Equation," in National Defense Transportation Journal, Vol. XLII, Jan.-Feb. 1958, p. 15.

forwarded to the Department of State for guidance in planning or coordinating intergovernmental planning.³

This is the procedure for advance planning to determine what bases are required. The problem, however, becomes more acute at the Unified Command level. Here, once the approved list arrives in conjunction with other guidance, such as strategic concepts, outline plans, and mobilization plans, the cycle accelerates. Planning for base development and establishing lines of communications is accomplished concurrently with strategic and tactical planning. Further, the several subordinate commanders involved also plan for the tactical operations and the accompanying support requirements in conjunction with and under the direction of the Unified Commander.⁴

During the strategic planning cycle, probably upon receipt of instructions or approval from the Joint Chiefs of Staff for a specific operation or a particular phase of a campaign plan, the Unified Command prepares a base development study. This study in general includes the concept of operation, the forces involved and, most important, establishes target dates and indicates broad logistic requirements.

As detailed plans are developed, the Unified Commander's base development study is transmitted to the appropriate subordinate

³US Dept of Defense, Joint Chiefs of Staff, "Joint Logistics and Personnel Policy and Guidance," JCS Pub 3, Dec. 1961, pp. 146-150.

⁴US Armed Forces Staff College, "Base Development for Joint Forces," AFSC Pub 6, Aug. 1964, pp. 3-5.

commanders in the form of a base development directive. This directive, the accompanying study, staff estimates, and planning details outline how planning will proceed. In general, the commanders of component forces and subordinate joint forces are told the specific responsibilities for particular projects and functions; phased completion dates for certain facilities; priorities of projects; standards of construction; allocation of areas; command structures; dates of coordinating conferences; references to standing operating procedures or other directives; and directs the submission of data and recommendations.

The Unified Commander reconciles any conflicting requirements of the various agencies involved and insures that adequate means are available to implement the plan.

Finally, the base development plan, a product of the concurrent planning of the various subordinate commanders, is consolidated and issued or published by the Unified Commander. This published document sets forth clearly the base facilities to be provided and the operating and service functions to be performed.⁵

Such is the planning process down to the base level. At the base level, the base commander is responsible for the final accomplishment of the plan. He must be familiar with the plans of the Unified Commander and each major subordinate commander in order that he may anticipate and be prepared to meet changing conditions.

⁵Ibid., pp. 8-9.

Normally, control of facilities, such as major road and rail nets, electric power, water supply, area transportation, communications, and the allocation of real estate are vested in the base commander.⁶ It is to be noted that the base command may be joint or uniservice.

APPLICATION BY THE US NAVY

The planning process, when accomplished according to this established doctrine, should provide for efficiency and effectiveness in the development of bases. However, time for this planning and more critical, the selection and training of service forces for base development, is compressed. Faced with a shortage of time, all too frequently expensive units are used to develop the base to the degradation of other missions. For example, Army Engineer Amphibious Support Command commanders are required to develop the base at the expense of being ready to support additional landings or of providing combat units the assistance necessary to effect passage of water barriers.

To avoid problems such as these, and to be certain that combat operations are not hampered by lack of adequate support, the US Navy has three types of units for the construction and development of advanced bases. The Navy noted that in World War II most of the advanced bases built by the Navy were developed in areas where no existing facilities were available. In looking to the future, the Navy has stated:

⁶Ibid., pp. 3-5.

In a possible future conflict the large majority of such bases will be established in areas having at least some existing facilities which could be adapted to Navy use, thereby cutting down the overall requirements for functional components, equipment, materiel and labor that would be transported from the United States.⁷

Based on this assumption, the US Navy has tailored equipment components for several situations. The result of this planning provides both an appropriate unit and its requirements to develop advanced bases.

Early in 1952, the Chief of Naval Operations directed the supplying Bureaus to procure and assemble materiels and equipment for a definite number of main and secondary fleet bases. The main bases were designated "LIONS" and were designed for major, all-purpose naval bases including facilities for ship repair. The secondary bases were designated "CUBS" and designed for medium size fuel and supply bases with no ship repair facilities. Later that year the "ACORN" unit was introduced to provide for the establishment of an advanced air base.⁸

These three component units were tested, modified and finally standardized. Along with these standard units a catalog of advanced base functional components was published to describe the variations in equipment and materiel needed for the required modifications in bases depending on the geographic location, facilities needed, facilities available and other considerations. These units and

⁷US Army Command and General Staff College, Reference Book: Navy-Marine Corps. RB: 110-2, Jun. 1962, pp. 108-109.

⁸Ibid., p. 111.

their functional components are revised and maintained in an up-to-date state as experience is gained in worldwide operations and as new materiel and techniques are developed.⁹

With the LION, CUB, and ACORN component units, the Navy Construction Forces are organized to meet specific command and administrative requirements, rather than on the basis of a fixed number of units.¹⁰ The basic unit is the construction battalion, and as the needs of a base dictate, the battalions are combined to form regiments or brigades.¹¹ Thus, both equipment components and the construction units are capable of wide variations in capability to construct the needed bases. The functional equipment components and the construction units can be phased into an objective area and complete the required development in a minimum amount of time and be available for movement to another task. This system results in great savings in time, effort and materiel.

It is significant that in the development of an effective method of establishing bases, the Navy has recognized two basic factors in logistic support: First, that the closer the base to the area of enemy operation, the more effective it will be, and second that logistic support is not simply a matter of volume supply. It is essentially a problem of the efficient scheduling, regulating, and distribution of the flow of necessary materiel and services.

⁹Warrell R. Carter, Beans, Bullets and Black Oil, pp. 50-51.

¹⁰Ibid., p. 53.

¹¹US Army Command and General Staff College, Reference Book: Navy-Marine Corps. RE: 110-2, Jun. 1962, p. 115.

THE NEED FOR PROPER PLANNING

It has been recognized that the efficiency of the development and operation of a base is in direct proportion to the care exercised in the planning process. This process is well defined in existing publications which advise that careful planning must allow for flexibility, particularly in matters of detail. Further, there must be sufficient detailed planning to give units assigned the technical task of base development a clear understanding of the facilities and services required to accomplish the mission. The complete coordination of operating and staff personnel is required in the planning stage in order to determine all the requirements and to provide for meeting them.

The planning procedures provide for three major steps:

1. Preparation of a base development study, concurrent with an operations study.
2. Issuance of a base development planning directive.
3. Preparation, consolidation and issuance of a base development plan.¹²

In the US armed forces today there are elaborate and detailed planning procedures. These are well designed to meet the needs of the established peacetime legislative and budgetary processes. In general they consist of the orderly development of a group of

¹²US Armed Forces Staff College, "Base Development for Joint Forces," AFSC Pub 6, Aug. 1964, pp. 48-51.

interdependent plans and programs extending over a period of several years. In some instances, the plans themselves project many years into the future with provisions being made for annual modification to bring them into line with the current basic situation.

However, the actual development of a combat, or potential combat situation, and the rapidity of high level decisions may not permit the peacetime plans to be put into effect. For example, Major General Crump Garvin has said of Korea: "The Korean operation was probably the most unplanned operation in the history of our armed forces."¹³

Here, because of the rapidity of decision, US combat forces had to be moved into an objective area in a short period of time and a complete departure from the normal planning process was experienced.

General John Norton writes of a parallel experience in Vietnam when he states: "Virtually overnight the US Army Support Group exploded into a major headquarters deeply involved in planning and directing a mammoth administrative and logistics effort extending throughout the country."¹⁴

Because of a quick decision at the national level, the US forces in Vietnam were rapidly increased and the logistic support for these forces had to be provided without adequate plans.

¹³Crump Garvin, "Pitfalls of Logistics Planning," Army Information Digest, Vol. 16, Apr. 1962, p. 18.

¹⁴John Norton, "Buildup Challenge in Viet Nam," Army, Vol. 15, Nov. 1965, pp. 45-47.

SUMMARY

However diluted by improvisation, logistics is essentially a planned and organized activity. Every armed soldier placed and sustained on the firing line is an end product of many months of logistical preparation--the long process of designing, manufacturing, and distributing his weapons and supply, the somewhat shorter one of training him and moving him to the scene of action. The need for the soldier and his weapons and supply at a particular time and place, therefore, must be anticipated.

How, then, can the logistical process itself be planned in advance of strategic and tactical decisions? The answer appears to be that a large part of the logistical process must be carried through without knowledge of the specific purposes it is to serve. Broad assumptions have to be made and large general objectives laid down, based upon what little guidance is afforded by the general orientation of strategy. Assumptions and objectives often prove to be wide of the mark; unforeseen needs arise that cannot be met from available resources. Much of the haste and waste in logistical preparations is caused by last minute efforts to improvise from insufficient or unsuitable materials the means for carrying out military operations. The only defense against such waste is another kind of waste--the calculated oversupply produced by general estimates of maintenance and resupply requirements and other "cushions" built into the supply program. This kind of logistical support

demands virtually unlimited resources in munitions, supply and transport. With them and using the staging method of resupply in combination with accumulated reserves near the objective area, armies can fight, strike hard, move swiftly and sustain their driving force. However with such a system the combat force may experience diminishing returns in mobility and flexibility, and an increasing risk that road, rail or port bottlenecks may clog and result in paralysis.

Logistical planning for war is not a task to be left to the inexperienced. As a former Deputy Chief of Staff for Logistics has stated: "Logistics has become far too complicated a function to be executed by amateurs hastily assembled into provisional organizations."¹⁵ With the increase in the variety and complexity of our military equipment we must have experienced logisticians to evaluate the continuous increase in our military commitments overseas.

Since World War II, the last international conflict, the colonial territories and independent states of Latin America, Africa, the Middle East and southern Asia have become the principal military arenas in world politics. Therefore, an evaluation of the support requirements for conflict in underdeveloped areas is covered in the next chapter.

¹⁵Carter B. Magruder, as quoted by Douglas H. Patterson, A Program for the Development of Officers as Logisticians, 19 Mar. 1959, p. 5.

CHAPTER 4

LOGISTICAL PLANNING FOR UNDERDEVELOPED AREAS

INTRODUCTION

Having discussed the planning process for the establishment of oversea bases and their extending lines of communications, it is appropriate to turn now and consider the underdeveloped areas of the world as potential areas of combat action. These areas comprise at least fifty percent of the world's land surface and contain two-thirds of the world's population.¹ Since World War II, the United States has become progressively more deeply involved in the affairs of the underdeveloped nations and has accepted free world leadership in efforts to prevent the spread of communism and maintain peace and stability.²

These areas are for the most part highly vulnerable to insurgency and poorly prepared to cope with it. As a result, they have become the principal areas for Communist-inspired wars of liberation.³ The responses to this unprecedented situation are well known. Outstanding among them have been the Marshall Plan, the Point Four Program and the extraordinary network of alliances by which the United States has attempted to guarantee the security of, and

¹US Army War College, Strategic Implications of the Developing Areas, Directive, Course 4, p. 15.

²Ibid.

³Ibid.

increase the strength of, these nations and indeed the entire non-Communist world. The United States has assumed commitments for the security of forty-two nations.⁴

POSSIBLE MILITARY ACTIONS

Upon the request of a recognized government the United States may employ combat forces for any of several reasons. These may include actions to encourage a weak and faltering government, to stabilize a restless area, to deter or thwart aggression or check or counter aggressive moves by opposing powers; or to maintain or restore order.⁵

From this low end of the spectrum, we can expect combat forces to be employed in areas of active conflict and to go immediately into battle if it is in the United States interests. Regardless of the circumstances, if United States forces are committed to any type of action, they must be supported.

In the last ten years the question of the readiness of our armed forces for immediate combat has been of increasing concern. Time and again we have been warned that war on a very large scale may be suddenly precipitated. As a result, all services have placed

⁴William W. Kaufmann, The McNamara Strategy, p. 5.

⁵US Dept of the Army, Field Manual 100-5: Field Service Regulations, Operations, 19 Feb. 1962, p. 155.

more emphasis on realistic combat training; and special organizations and staff sections have been set up to supervise the inspections and reports which deal with combat readiness.⁶

In the navy the techniques of replenishment at sea have been studied and improved by constant practice. In the army the annual Logistical Exercise (LOGEX) maneuvers have studied support techniques. In the air force air refueling techniques have been developed in an excellent manner. In all services the techniques of peacetime supply have been thoroughly overhauled.⁷ In spite of these and other worthwhile developments there are many additional areas of logistic planning and operations that are of great importance to the rapid development and maintenance of maximum combat effectiveness when combat forces are to be committed into undeveloped areas of the world.

LOGISTICAL CONSIDERATIONS

Due to the nature of the conflict which causes United States forces to enter an undeveloped nation on a combat mission, it may readily be assumed that logistical support will normally be characterized by both organizational and geographical decentralization. The deployment of the command and its organization for combat will usually dictate modification of conventional logistical structures

⁶Henry E. Eccles, Logistics in the National Defense, p. 289.

⁷Ibid., p. 157.

and procedures to provide effective support of combat operations. To illustrate let us consider some of the logistical functions.

First, supply: Supply planning must recognize the lack of valid experience data for the wide variety of environments in which this type of operations will occur.⁸ Established consumption factors, basic loads, stockage levels, and past issue experience must be adjusted to fit the local requirement. Similar factors must be developed for non-US forces which may have to be supported in whole or part from US stocks. The abnormal need for specialized items of materiel must be taken into consideration as early as possible and thoroughly coordinated with responsible commanders and staff agencies.⁹

Quite frequently it will be necessary to establish and maintain stockage levels of each class of supply at echelons below those where large stocks are not normally carried. Area control bases, outposts, garrisons, and security detachments are examples of localities where significant stock levels may be necessary on a continuing basis.¹⁰

The command must also be prepared to provide minimum essential items to the civilian population.¹¹ These civilians may include the victims of enemy attack, isolated population centers and groups which have been relocated or concentrated for security reasons.

⁸US Dept of the Army, Field Manual 101-10: Organizational, Technical and Logistical Data, Jan. 1965, p. 217.

⁹Eccles, op. cit., p. 225.

¹⁰Franklin Mark Osanka, ed., Modern Guerrilla Warfare, p. 26.

¹¹US Dept of the Army, Field Manual 101-10: Organizational, Technical and Logistical Data, Jan. 1965, p. 324.

Normally, these supplies are limited to Class I, food, but they may include other survival necessities such as medical supplies, clothing, construction materials, fuel and nonstandard items.

Supervision of the distribution of non-US supplies for civilians will often be necessary.¹² This may require the establishment of strict controls for the assembly, storage and issue of supplies which could offer aid and comfort to the enemy military forces. While every effort is made to use non-US personnel to the maximum for these tasks, the situation may be such that all or part of the workload will fall on the US supply agencies.¹³

Security of base areas, lines of communications and forward supply facilities may become critical. Not only must supplies be protected for US consumption but they must be denied to the enemy forces.¹⁴ Logistical personnel must be prepared and equipped to cope with, as a minimum, a limited attack, and must be capable of guarding against contamination, pilferage, and robbery of supplies by both friendly and hostile personnel. In cases of extreme threat, it may be necessary for the force commander to employ combat forces to secure the installations along the line of communications.¹⁵

The second main factor of support in underdeveloped areas is movement.¹⁶ Transportation planning and operations must recognize

¹²Osanka, op. cit., p. 399.

¹³Eccles, op. cit., p. 209.

¹⁴Osanka, op. cit., p. 400.

¹⁵US Dept of the Army, Field Manual 100-10: Field Service Regulations, Administration, 9 Jul. 1963, p. 45.

¹⁶William B. Bunker, "The Importance of Transportation as a Function of the Logistics Equation," in National Defense Transportation Journal, Vol. XLII, Jan.-Feb. 1958, p. 42.

the increased problems inherent in supporting military operations.

These are:

1. The distances usually existing between area control bases, garrisons, security detachments and combat units operating in the field.

2. The extremely difficult terrain and lack of communications existing in underdeveloped areas.

3. The high degree of probability that movements will be subject to ground attack or harassment and delay.¹⁷

Organic transportation of the combat force will usually require augmentation. This must come from logistical resources or local civilian or military sources. Provision of adequate transportation may require such measures as:

1. Recruiting non-US bearer units to man-pack materiel and supplies.

2. Organizing provisional animal pack units, to include the necessary logistic support backup, from whatever sources are available. Planning data for use of pack animals is found in the US Department of the Army Field Manual 101-10, Part 1, unclassified data.

3. Exploitation of available waterways for barge, small boat or raft movement.

¹⁷US Dept of the Army, Field Manual 100-5: Field Service Regulations, Operations, 19 Feb. 1962, pp. 157-159.

4. Exploitation of local land transportation to include railways and highway equipment.¹⁸

As mentioned under the discussion on supply, enroute security will normally be provided for all surface movements. Appropriate measures include:

1. Intensive combat training of drivers and the arming of appropriate vehicles.
2. Use of armed helicopter escorts.
3. Provision of ground escorts. If available, and if terrain permits, tanks and lightly armored vehicles may be used.
4. Both army and air force aircraft should be considered for protection of troop and supply movements.

US Department of the Army Field Manual 100-10 has an excellent discussion on command and staff responsibilities for rear area security which is appropriate for operations in underdeveloped areas.¹⁹

The next logistical function to be considered is medical service support. In the underdeveloped areas it can be expected that normal medical service organization and procedures will require some modification. Usually this is required because of the dispersion of the various elements of the forces to be supported, the rapid movement of combat forces operating in the field, the need to provide air evacuation from forward units to hospitals which bypass intermediate

¹⁸Ibid.

¹⁹US Dept of the Army, Field Manual 100-10: Field Service Regulations, Administration, 9 Jul. 1963, pp. 45-49.

medical facilities, and the vulnerability of ground evacuation means to enemy attack.

To cope with these problems several measures may be taken.

These include:

1. The establishment of aid stations or dispensaries having an organic treatment and holding capability larger than normal.
2. The placing of aid stations at command echelons lower than normal.
3. The development of the ability to evacuate over surface lines of communications using secure convoys.
4. The providing of sufficient air or ground transport to permit medical elements to be fully mobile.
5. Maintaining a capability to rapidly reinforce any medical facility in the event of an unexpected casualty load.
6. Providing medical support to civilian localities which have been subjected to enemy attack.
7. Providing sufficient air evacuation capability to furnish both scheduled evacuation from medical facilities and on-call evacuation from combat units and forward medical facilities.
8. Maintaining a capability to provide provisional unit medical service to combat units on long-range missions.
9. The formation of non-US litter bearer teams for use in combat areas where terrain or other available means preclude surface evacuation by vehicle and air evacuation is not available.
10. Providing strict supervision of sanitation measures, maintenance of medical equipment and advanced first aid training throughout the force.

11. Placing increased emphasis on basic combat training of medical personnel, arm medical personnel if required and provide armored vehicles for ground evacuation if required.²⁰

In the area of construction the underdeveloped communications system and the difficult terrain conditions will frequently require more light construction support than normal. The situation is usually aggravated by the large-scale destruction and sabotage operations of the enemy forces. Depending on the ground scheme of maneuver and organization for counterinsurgency operations, construction planning must provide for establishing area control bases and their defenses, an adequate ground communications system, extensive airstrips and helicopter pads in difficult terrain, resettlement or concentration areas for local populations and mobile repair teams capable of rapid movement to facilities which have been damaged by enemy action.²¹

The scope of the construction effort will require maximum exploitation of local labor and material resources. In addition, combat units will be required to participate to a larger degree than normal in the construction of facilities for their own use.

In any military operation in the underdeveloped areas the civilian support rendered to the US forces may mean the difference between success and failure. This is particularly acute to logistical

²⁰US Dept of the Army, Field Manual 8-10: Medical Service, Theater of Operations, 12 Nov. 1964, pp. 105-115.

²¹US Dept of the Army, Field Manual 101-10: Organizational, Technical and Logistical Data, Jan. 1965, p. 442.

support operations which must depend so heavily on civilian facilities and labor. It is of vital interest to any US military force that civil affairs agreements be negotiated as soon as possible after the force arrives in the objective area. The most propitious time for negotiating such agreements is prior to the entry of our troops in the area. This may not be possible, therefore, plans should provide draft agreements which can be negotiated when the need arises.²²

In the function of maintenance of equipment, it is not envisioned that a high degree of maintenance will be performed initially because of the expense incurred in providing adequate personnel and facilities. However, a greater requirement must not be overlooked. The wide variety of terrain, climate and local infrastructure may require up to repair and rebuild (third and fourth echelon) level in order for the combat forces to be effective. Logistical plans for operations in underdeveloped areas must, therefore, make provisions to provide adequate support to the combat force with a minimum drain on other administrative or logistical support resources.

The determination of what logistical resources are required in order to create and to support the combat forces is obviously a basic command decision. It is equally obvious that not everything can be done at once and that not every commander can have all the forces

²²US Dept of the Army, DA Pamphlet 690-80: Administration of Foreign Labor During Hostilities, 9 Jul. 1963, p. 75.

and resources which he would like to have. Therefore, we can be sure that in any future war, just as in the past, the establishment of effective systems of determining priorities and allocations in many logistic areas will be imperative. It will be particularly important in transportation, in personnel, and in critical equipment and materials. A look at two past actions may assist in clarifying the point.

THE LEBANON ACTION

The timely deployment by the United States of the Specified Command, Middle East, at the request of the Lebanese Government prevented the overthrow of the Lebanese Government through the operation of intense pressures then being exerted upon it by rebel bands, fifth columnists, and a visible military threat along its borders.²³

At the outset of the internal disturbance in Lebanon the units that eventually participated in the landing at Beirut were deployed over a large global area including the Mediterranean Sea, France, Germany and the United States. The marine units, while present in the Mediterranean area, were widely scattered. The 24th Infantry Division was located in Germany, the support forces were in both Germany and France, and other combat, combat support, and combat service support units were in the United States.²⁴

²³US Specified Command, Middle East, After Action Report, 15 July 1958 - 25 October 1958, Pt. I, Sec. I, p. 2.

²⁴Ibid., pp. 5-11.

Combat operations were not required when US forces landed at Beirut on 15 July 1958. Neither the Lebanese Army nor the Opposition Forces interfered with deployments made to establish a beachhead line and secure the Beirut International Airfield, the harbor area, the Ambassador's residence, the US Embassy and waterworks as planned.²⁵

Some of the problems encountered in providing logistical support for this operation are summarized below.

1. Because of limited airlift and the requirement to place the maximum number of combat troops into the objective area as expeditiously as possible, the minimum number of vehicles were airlifted. This immediately posed a transportation problem in unloading resupply equipment from follow-up aircraft. This problem was solved through the cooperation of the Lebanese Army. This arrangement proved satisfactory until the arrival of a truck platoon on 21-22 July 1958. For sea shipments a combination of military and commercial trucks was used to transport the supplies from the ship to the supply points.²⁶

2. The acquisition of real estate was a major logistical problem at first. The self-imposed restraint of US forces in Lebanon precluded the acquisition of real estate by force. Negotiation of leases and payment of contracts were unduly delayed. Bivouac areas (Olive Grove, Open Areas, etc.) were occupied

²⁵Ibid., Pt. II, Sec. II, p. 1.

²⁶Ibid., p. 2.

initially without formalizing leases for the property.²⁷ In future operations of this nature the government that invites US forces into its country should provide the necessary real estate and experienced real estate personnel should accompany the force into the objective area.

3. The marines landed on 15 July 1958, four days before army elements arrived, and were without definitive medical treatment facilities other than for ships offshore. From 19-28 July 1958 the army was also without medical support except for one surgeon who planned to use the limited facilities of the ship USS Pocono. The 58th Evacuation Hospital arrived on 28 July 1958. In an objective area such as this surgical facilities should be airlifted in immediately after the main body of combat troops.²⁸

4. Automatic supply was ordered at combat rates for the entire planned force. Force Bravo, approximately 1700 personnel, did not come into the objective area. It had been planned to use selective off-loading of cargo vessels to prevent the entire cargo from coming ashore. This could not be accomplished as the ships were not loaded for selective discharge. Additional difficulties were encountered in the attempts to divert cargo to Turkey because the ships' manifests were incomplete.²⁹

²⁷Ibid.

²⁸Ibid., p. 3.

²⁹Ibid., p. 4.

5. Engineer repair parts became a major supply problem due to the nonstandardization of engineer equipment.³⁰

6. Some energetic thought should be given to ways of providing logistic support for STRAC forces in small, balanced resupply rather than the 15 to 30 day levels used for this operation. Large reserve stocks up close, which tie down the combat element, should be avoided.³¹

7. The effectiveness of the logistical command in supply control was hampered by the lack of preparation of elements of the command for the operation. The supply personnel did not know what items, in what amounts should be available for a day of supply nor did they know the basis on which the automatic resupply was computed.³²

8. The problems in rail transportation were magnified because the railroad employees stopped work early in order to get home before the curfew at 2000 hours, and insufficient rail marshalling areas were available at the ports to discharge ships.³³

9. No plan had been made for the logistical command to support the marines. Such support was immediately required and very early became critical in the fields of transportation and medical support.³⁴

It is not required to produce more examples of shortfalls in this operation to illustrate the need for adequate planning, flexibility in operations, and coordination if effective support is to be provided.

³⁰Ibid.

³¹Ibid., p. 6.

³²Ibid.

³³Ibid., p. 7.

³⁴Ibid., p. 11.

The problems encountered in Lebanon can in large part be attributed to the fact that the force was a composite of many elements who were not trained for this particular operation, did not know how to work together, and were basically uninformed on the job to be done until major problems arose.

Although Lebanon is not a prime example of a military mission in an underdeveloped area, it nevertheless illustrates many of the logistical support problems which will be encountered and may even be magnified in future operations.

DOMINICAN REPUBLIC

A more recent operation which involved US forces being deployed to conduct contingency operations was to the Dominican Republic in April and May 1965. As this was the first full-scale "call out" of XVIII Airborne Corps forces since the Cuban crisis in October 1962, there were several logistical problems encountered in the alert and preparation for movement phase of the operation. Most were minor in nature and had no serious impact on the overall logistical preparation. However, the increase in the introduction of tactical units from that planned resulted in the phase-back of key logistical elements in the airstream. Further, the Corps Logistical Annex and operation plan, which included the automatic resupply schedule and related Army Materiel Command equipment lists, were not sufficient to support the expanded troop list. Moreover, many changes

to organization structures and new equipment issues to the field had been made since the plan was published. This quickly resulted in shortages and many requests for emergency resupply had to be made.³⁵ As the operation progressed other problems arose. These were:

1. Initially each combat force was tailored so as to provide sufficient logistical elements to handle its support requirements in the objective area. However, these logistical elements were also phased back in the air stream and some were not called forward for four days.³⁶

2. Units were directed to deploy with 5 days of Classes I, III, and IIIA supply, 15 days of Classes II and IV supply, and unit basic load of ammunition. Because of the phase-back of the logistical elements, many units did not take this amount of accompanying supply with them. This resulted in emergency supply action having to be taken on D+1.³⁷

3. Establishment of the logistical base was hampered by the lack of suitable real estate to include minimal covered areas for sensitive supplies and maintenance operations. In some cases supplies were not protected by overseas packaging and weather damage was extensive.³⁸

³⁵US Army XVIII Airborne Corps, Stability Operations Dominican Republic, Vol. IV, Pt. 1, 31 Aug. 1965, p. 2.

³⁶Ibid.

³⁷Ibid., p. 3.

³⁸Ibid.

4. Cargo handling was made extremely difficult due to the excessive amount of loose cargo, mixed loading of pallets, and lack of cargo documentation.³⁹

5. The supply of petroleum products from in-country civilian resources was effected on D+5. As operations continued the POL discharge pier in the port of Santo Domingo came under rebel control and lines had to be laid seaward for discharge in stream.⁴⁰

6. Class I operations began with a deficit which was never recovered and levels remained marginal throughout the period. The deficit resulted from increased strength including Latin American forces, loss and damage, and receipt of incomplete menus. On D+6 the troops had only one-half day and "C" rations had to be borrowed from the 4th Marine Expeditionary Force.

7. Maintenance of equipment and resulting low deadline rate were due to the excellent condition of the equipment when deployed.

In summary, the primary logistical problems encountered in achieving readiness continued to be shortage of equipment, equipment deadlined for parts, and the lack of an adequate maintenance float to replace deadlined items.⁴¹ It must be remembered that the deployment of forces was initially conducted without opposition. This factor lessened the impact of the phase-back of combat service support elements. Also, demands for heavy tonnage supplies, i.e., Classes

³⁹Ibid., p. 4.

⁴⁰Ibid.

⁴¹Ibid., p. 5.

III and IV, were greatly reduced. Therefore, automatic resupply shortfalls and emergency demands for supplies and equipment were easily accommodated within available airframes.

For combat in underdeveloped areas the supply levels in the objective area can be held to a minimum by using air stream resupply. Stability operations such as those experienced in the Dominican Republic can be supported by air stream through a CONUS logistical coordination center. However, as the operation continues in time, ample stockage and general support units must be introduced by surface means.

SUMMARY

Notwithstanding the adequacy of logistical planning, the sudden decision to commit US forces into underdeveloped areas will present logistical problems. These problems can be caused by many factors, not the least of which is the nature of the operation itself. Normally the operational environment is inherently sensitive, both politically and militarily. The scope and nature of missions assigned will frequently include political and administrative aspects and objectives not usually considered normal to military operations.

Depending on the nature of the conflict the major conventional forces may be organized for combat into a number of small, variable size, task forces (squad to brigade) capable of semi-independent action without the combat service support normally provided. The

tactical organization will be predicated on the enemy activity in the area, i.e., guerrilla controlled, active, cleared, or dormant; and other area factors such as terrain and weather.

The establishment of lines of communications to support military actions in underdeveloped areas may be made difficult because of tactical demands. For example:

1. A mobility differential over the enemy forces may be required. Dependent on the area, this will require a high degree of training in foot movement over difficult terrain and under adverse conditions, extensive use of armed transport aviation armed with weapon system, armed observation or utility helicopters, and/or a high degree of motorization or mechanization.
2. Heavy combat service support units may have to be held in a high state of readiness at some central location until situations develop which permit their effective employment.
3. The logistical units may have to be adapted to fulfill the requirements of the force being supported. Usually this will necessitate their operating from a large number of widely separated localities. In such instances, it will frequently be necessary to form small, composite units on a provisional basis. These units can perform their functions with a minimum of troops and will also be capable of maintaining support in extreme situations when provided with sufficient aerial supply vehicles.

4. Critical fixed installations and lines of communications must be secured by using dispositions and tactics set forth for units not restricted to fixed installations.

5. An extensive communications system is necessary. The extreme dispersion of small military units, the rugged terrain which is the usual operational area, and the requirements for detailed area surveillance and rapid, responsive, and continuous communication usually demand air and ground electronic surveillance and air and ground communications capabilities which exceed those of organic signal equipment.

A detailed study of past actions, such as the US involvement in Lebanon and the Dominican Republic as cited in this chapter, will go a long way in assisting to develop an effective support system, support bases, and lines of communications in the underdeveloped areas.

CHAPTER 5

OPERATIONS IN THE FUTURE

INTRODUCTION

The study of the lessons of the past has value only as it provides guidance for the future. While no one can accurately predict what the future will bring, it is nevertheless important to note the general trends which are becoming apparent. These trends, growing out of fundamental human factors, combine to produce specific military results which themselves create puzzling and at times contradictory effects. A detailed examination of all the interactions of these trends is not practicable. However, as the performance characteristics of weapons and equipment continue to advance, several specific results which are of great importance to the understanding of command logistics become evident.

First, technological advancements stimulate the formation of new weapons systems.¹ At the same time, it greatly increases the cost of initial procurement and of upkeep.²

As units and personnel become grouped in weapons systems each system tends to demand its own specialized tactical command and logistic support.³

¹Henry E. Eccles, Logistics in National Defense, p. 304.

²Ibid.

³Ibid.

Along with this, while there is a decrease of combat personnel in contact with the enemy, there is also a great increase in total personnel required.⁴

In other words, three vital changes are taking place: the number of direct combat personnel is decreasing, logistic requirements are more complex, and logistic personnel is increasing. In terms of numbers of men, in fact, it is worthy of note that the center of distribution of military personnel is moving back from the enemy toward the logistic base.

A critical logistic paradox is found in the communication situation. On the one hand, our logistic systems are being modernized to take more advantage of electronic communications, while on the other hand the demands of tactical communications are cutting down the allocation of radio circuit time for logistic use.⁵

A further effect of advanced technology is to reduce the capacity of combat forces for self-maintenance. A generation ago a good mechanic with a few tools could repair or build a needed repair part. Today most of such improvisations are impossible. Instead a new part or component must be installed. This increases the dependence of the combat force on the logistic organization.⁶

⁴Ibid.

⁵US Dept of the Army, Field Manual 11-20: Signal Operations, Theater of Operations, Apr. 1962, p. 85.

⁶US Dept of the Army, Field Manual 9-1: Ordnance Service in the Field, Jun. 1959, p. 32.

While these changes create complex logistic problems, more subtle and less obvious psychological problems are also shaping up. Because more and more computers are being installed and used to assist in making many tactical decisions as to course, speed, target selection, weapon selection, and firing data, commanders must devote more and more attention to the material readiness of complex command equipment.⁷

At the same time, as the combat officer becomes more and more involved in the logistics and weapons systems, strategic decisions and major tactical decisions tend to be elevated in the chain of command in accordance with the trend towards greater centralization of authority throughout the military service.⁸

However, modern weapons have created a need for both tactical and logistic dispersal. These in turn demand greater decentralization. In a case of such an obvious contradiction a wise blend of centralization and decentralization must be sought and this requires a knowledge of logistic cause and effect. The introduction of nuclear power by no means eliminates the problems of logistic support. It merely changes them, for when one logistic limit has been overcome another one takes charge.

The army history of the Korean War points this up in the following terms:

⁷US Dept of the Army, Army Regulations 750-6: Maintenance Support Planning, 21 Aug. 1964, p. 2.

⁸Eccles, op. cit., p. 309.

Almost never will all logistic requirements be satisfied in an exact balance, and as long as that is true, and as long as military operations are governed by the finite, some phase of logistics is bound to be a limiting factor.⁹

The greatest paradox and, therefore, the greatest danger lies in the fact that we must be prepared to fight both an unlimited thermonuclear war and a variety of limited wars while at the same time we must maintain our position in the cold war. We must deal with the entire spectrum of conflict. Those extremists who say that we can or should prepare for only one kind of conflict are courting disaster because they are implicitly rejecting the concepts of flexibility and change which are fundamental characteristics of humanity and nature.¹⁰

The contradictions between preparation for the thermonuclear and for limited conventional war are primarily in the logistic field. Therefore, it will be largely in the field of logistics that our readiness for future conflict will be determined.

THE COMBAT ENVIRONMENT

In looking to the future we can expect a continuation of the present "cold war" conflict for an indefinite period of perhaps ten years, perhaps fifty or more years. No one is wise enough to know.¹¹

⁹James A. Houston, "Korea and Logistics," Military Review, Feb. 1957, p. 38.

¹⁰Eccles, op. cit., p. 317.

¹¹Ibid.

All the forces which influence the situation are variable and as they increase or decrease in intensity the situation will change. The accurate measurement of the situation and its precise evaluation are beyond the reach of any science.¹²

However, an improved knowledge of the forces and of how they probably will work will assist us to effectively adapt our policies and methods to the changing situation. We can expect accelerated technological progress to continue in all parts of the world. While we will make every effort to protect the security of our own military technology, we cannot expect to be wholly successful in this nor can we expect to prevent our enemies from making at least equal progress.

Warfare seems to be developing in two opposite directions simultaneously. With the development of electronic controls for guided missiles, nuclear weapons, and nuclear power, we seem to be approaching a push-button type of war. In this the major effort might go into preparation for a war in which the decision would rest on the relative ability to give and to absorb devastating blows in the first few hours of a war. In such a war the major logistic effort after the war broke out might well be in the logistics of relief and rehabilitation of the homeland and its industry.

¹²Ibid., p. 318.

At the other extreme there is the prospect of a continuance and intensification of a politico-economic-psychological cold war with overtones of guerrilla warfare, subversion, and sabotage. This would require the maintenance of large, modern, relatively conventional military forces on a ready basis. It might not require their large-scale active participation, and it might require almost total commitment. In any event, the demands of war would require logistic efficiency to support any type of guerrilla warfare and a capability to support the nuclear capable forces standing by.

Somewhere between these two extremes lies the possibility that we may fight a conventional war of considerable scope and of great technological complication, with limited weapons. This again would demand logistic efficiency to improve the combat effectiveness of our engaged forces, to survive the simultaneous economic struggle, and at the same time to remain prepared for the explosion of an unlimited war.

ESTABLISHMENT OF LINES OF COMMUNICATIONS

Beginning at the upper extreme of the spectrum let us visualize a hypothetical situation in which a base must be established to support combat operations. Since support of future combat operations extends from a geographical area which is the source of support we will concentrate on the establishment of a base in a nuclear environment.

We must assume that any major installation may be destroyed at any time by a missile carrying a nuclear warhead, and that any bottleneck in our lines of communications may be rendered impassable at any time. Changes that nuclear power bring about in the tactics of our combat troops tend to put an end to the security of our lines of communications. These assumptions certainly present a different situation from our experience in recent wars when the destruction of our industrial installations, depots, ports, railway bridges and other structures, although possible with bombs, seldom occurred because the United States forces usually enjoyed air superiority.

We must also assume that we will face intrusion of enemy forces into our rear areas. In World Wars I and II and in Korea, our rear areas were relatively safe and undisturbed. It is true that in both World Wars until the navy had virtually eliminated German submarines, our sea lanes were not secure, but not since the days when Stuart's Cavalry roamed enemy rear areas have the land lines of communications of an American force been placed in constant jeopardy. In future nuclear war, the dispersion we must accomplish to avoid offering profitable targets to enemy nuclear weapons will prevent the establishment of the strong, continuous "front line" which has protected our rear areas in the past.¹³

¹³"The Army in 1962," Army Information Digest, Vol. 13, Jan.-Feb. 1958, entire issues.

If it is to serve its intended purpose, the logistical system must adapt itself to the nature of nuclear warfare. It must be prepared to function in an environment that previously would have been called chaos. It must anticipate that the flow of materiel will be interrupted frequently and seriously. Its personnel must be prepared to live and operate under a constant threat of destruction. It must adapt itself to a greatly increased complexity of weapons and associated equipment. Finally, it must cope with the problem of supporting highly mobile forces which are able to move many miles in a day either laterally or forward. It must have units capable of giving the combat force the support it needs in such vital areas as supply, maintenance, communications, engineer support and medical service.¹⁴

The safety of surface shipping will be a difficult task for the navy. While the battle of the sea lanes is being fought, heavy cargo losses are anticipated. During this period dependence on theater reserves and prestocks of critically essential combat supplies is visualized. In the oversea areas it is expected that the large ports and air and water terminals will be destroyed or greatly damaged. Moreover, as shipping arrives in the oversea areas, any concentration of ships will offer a highly remunerative target.

¹⁴L. J. Lincoln, "Logistics in the Atomic Era," Army Information Digest, Vol. 13, Feb. 1958, p. 27.

This will require dispersion of shipping at many destinations where packets of four or five ships can be quickly unloaded.¹⁵

Depots in the oversea base will be located far enough from the water terminals and beaches to secure protection by dispersion but still close enough to avoid overburdening the transportation system with long hauls of cargo not urgently needed by the troops. In addition to dispersion of stocks, we must be able to determine at any time what stockages remain ready for issue.

The development of bases will be successful in direct proportion to the amount of detailed planning which proceeds the assault and to the development of appropriate units and equipment to accomplish the mission. As previously mentioned, terminal operations will be conducted from existing port facilities and undeveloped beaches. Extensive rehabilitation or major new construction will not be possible. Instead, roll-on/roll-off type vessels, conveyor type discharge apparatus, amphibious equipment and spud barges will be used.

Methods of discharging roll-on/roll-off ships will be standardized, and ocean transports and cargo vessels will be modified to accommodate helicopters for priority discharging operations. Units will be reorganized as necessary to permit decentralized operations and administration. The necessity for more rapid handling of supplies

¹⁵"The Army in 1962," Army Information Digest, Vol. 13, Jan.-Feb. 1958, p. 12.

with a minimum of manpower will require improvements in containers, pallets, and packaging methods. Containerized and palletized cargo will reduce handling, checking, damage, and pilferage, and will permit ease of transfer between various modes of transportation.¹⁶

Concepts for the future tend to compress the phases of tactical operations into shorter and shorter periods. This produces a two-fold impact on base development. First, it becomes imperative that each stage of the development of the base, from initial assault to final operation at full capability, be also compressed in time, and second it produces the additional requirement for the base to have a high degree of operational ability at each stage of development. Therefore, not only must the base be carefully planned as to facilities needed, but the units which will develop and operate the base must be carefully selected.

These base development units must be highly trained, to include the ability to operate during an amphibious and/or airborne assault. They will arrive in the objective area with the assault force and operate under the assault force commander. Their equipment will be so designed as to permit rapid rehabilitation or the initiation of new construction for the required facilities in the base area.

Once the units arrive in the objective area they begin the development of the base and, with other support units, put the partially developed facilities into operation. As the development

¹⁶Lincoln, op. cit., pp. 30-31.

task proceeds to that point where heavy construction, beyond the capability of the base development unit is required, they are phased out of the objective area and made ready for subsequent operations.

To look at other aspects of logistics, in the field of petroleum, which will represent from 50 to 75 percent of the incoming supply tonnage, new type containers, improved methods of distribution, and improved transfer equipment will be used.¹⁷

As the base develops, an improved system using new organizations and methods of control will be used. A single operating agency will be established which will be responsible from shipside until the product is turned over to using units. Hourly reports, handled by automatic data processing, will provide close control. Thus, depot facilities can be minimized. Enough petroleum products must reach units to supply their needs, but too much will overtax the limited storage facilities provided.

Under this system, a tanker can anchor offshore almost anywhere--ports will be too vulnerable to be used extensively--while the product is pumped either through a flexible floating pipeline or an underwater line, to a family of tank farms ashore or even submerged in still water. These tank farms may be made up of flexible containers that can be put up or dismantled in a matter of hours.

Pipelines will extend as far forward from the base as possible. From the end of the line, products will be distributed in bulk form

¹⁷Ibid., p. 13.

by tank truck. In addition to the pipeline, distribution also will be by truck, rail or barge where conditions permit. Aircraft can and will be used, both for bulk distribution and for air dropping to units.

Ammunition has always been a heavy tonnage commodity and has caused many problems in the development of lines of communications. Much of this problem may be solved in the future if very small yield nuclear weapons replace much of the heavy tonnage of conventional ammunition. However, until such time as this occurs, detailed plans should provide for facilities to rapidly unload ammunition carrying transports in the objective area. Once unloaded, the ammunition is quickly moved to prepared storage areas. These areas are carefully selected to provide the necessary open or covered storage area requirements and offer the maximum in security and protection.

Plans for each required project should provide for only minimum standards of construction or improvement necessary to accomplish the mission, consistent with the requirements for safety, health, morale, and protection. If the military operation is to be of relatively short duration, then roll-up plans must be made. Prefabricated and mobile facilities, as well as maximum use of local materials, should be considered.

During development, consideration must be given to the use of areas, which, in former times, have not been used due to distance or poor transportation nets. The requirement for rapid buildup of

the base, coupled with the requirement for dispersion will justify the use of such areas.

Duplication of facilities that are widely dispersed will be necessary to tight command control. This duplication is costly in construction effort and personnel; however, the serious effects of the loss of large single type installations will warrant such duplication. The cost of these facilities will be offset to a degree by insuring that only essential facilities are established.

Personnel to be phased into the base for development tasks will be formed in echelons. Each echelon will be staged at more than one location and arrive in the objective area at several widely separated points. Their arrival is coincident with having adequate space for dispersion. This may place limits on the size of each echelon or may force considerable dispersion within each echelon while enroute to the base area.

Coincident with the arrival of the early units which will be involved in base development, damage control plans will be placed into effect. These plans are made prior to departure for the objective area, and are integrated with local civilian plans as soon as possible after arrival in the area. When the indigenous population has no damage control plan, effort must be made to have them initiated. Failure to do so may result in a loss of local facilities and the ineffective use of indigenous labor.

Damage control operations will involve the use of special teams which rapidly move to the damaged site, assess the damage, initiate

requests for assistance, restore command control, begin salvage operations and make every attempt to restore the operational status of the installations and facilities in the area. While it is recognized that the above requirement for damage control operations goes much further than current doctrine, the emphasis on minimum essential facilities established in the base area will require such action.

Base areas are subject to attack by enemy saboteurs, infiltrators, guerrillas, airborne attacks and amphibious raids as well as attack from long-range nuclear weapons and enemy chemical and biological agents. The base commander will be responsible for the security of the base as well as for damage control operations. In the exercise of these functions the commander uses forces assigned to his command, forces located in the area, indigenous military, paramilitary and civilian personnel and combat units. In general, these security forces will provide relief for attacked units and installations, route security, convoy escort, denial of landing areas and drop zones and the finding, fixing and destroying the enemy forces operating in the base area.

Base development will have a major impact on the planning for and execution of the combat assault on the objective area since it will be initiated and partially accomplished as an integral part of the operation. The capability for continuance of offensive operations after the initial assault will depend in large measure upon adequate base development. Troops, equipment, materials, and

shipping to implement base development plans may be a considerable portion of the entire requirements for an operation. These extensive requirements may conflict with those for the conduct of the combat assault itself and must be carefully evaluated to achieve the necessary balance between combat and logistical support requirements and capabilities.¹⁸

In summary, the establishment of lines of communications in future war will face geographical problems, problems posed by the development of new weapons, problems arising out of a new concept of time, the development of new engineering units and techniques, new high speed construction methods, new materials, new transportation, the development of new materials--handling techniques, development of new facilities plans, and most important, the development of special units for base development.

THE UNDERDEVELOPED AREAS

Can the above visualization be adapted to the underdeveloped areas? As pointed out in Chapter 4, logistic support in the underdeveloped areas may be assumed to be characterized by both organizational and geographical decentralization. That the deployment of the tactical elements and its organization for combat will usually dictate modification of conventional logistic structures

¹⁸US Armed Forces Staff College, "Base Development for Joint Forces," AFSC Pub 6, Aug. 1964, p. 1.

and procedures and that tactical operations will usually make it necessary to provide support from widely dispersed locations and down to a level of command echelon where it is not normally provided.

In a nuclear environment, either actual or immediately threatened, a balance must be maintained between vulnerability and operational requirements. In the absence of a nuclear threat, or probability, greater concentration is indicated to achieve operational efficiency. The course of action adopted in a given situation is a matter of judgment and is a responsibility of command.¹⁹

Notwithstanding the above, however, logistic support activities are by nature less flexible and mobile than are combat units of comparable size. Such activities are incapable of the rapid transition from a nonnuclear to a nuclear environment which characterizes tactical units. Therefore, basic organizational structures and operational concepts for logistical support activities must provide for a dual operational capability which permits operations with minimum change regardless of the type environment encountered.²⁰

To insure logistic readiness to support combat operations it is always necessary to examine the plans. While the questions are simple and obvious, obtaining accurate answers entails rigorous and searching study. We should, for example, ask:

¹⁹Eccles, op. cit., p. 85.

²⁰Ibid., p. 108.

1. Are the logistical plans based upon, and do they support the tactical concept and the most probable courses of action?
2. Can they support alternate tactical plans?
3. Are they within the capabilities of the forces assigned?
4. Do they assign specific responsibilities for the performance of logistical tasks?
5. Are the logistic organizations structurally based on war requirements?
6. Can the organizations be expanded to perform additional functions?
7. Are the logistic staffs adequate for the planning and supervision of the tasks assigned?
8. Do combat command and logistic responsibility and authority go hand in hand throughout the chain of command?
9. How long does it take to recognize a new need, make decisions, transmit decisions, and carry them out?
10. Is there clear and unequivocal responsibility for the allocation of materials and services in the area of war?

SUMMARY

It is not intended that the above ten questions are all inclusive, but they are presented to illustrate that the determination of the aspects of logistical readiness to support combat operations, whether in nuclear or nonnuclear environment, in underdeveloped areas or not, consists of obtaining factual answers to a few practical questions. If these questions can be answered

affirmatively, the command is logistically ready for combat. If the answers are negative or unknown to any degree, then to that same degree the command is not ready for combat. Perfect logistic readiness will never be attained but the difference between good and poor logistic readiness may well be the difference between success and disaster.

CHAPTER 6

ANALYSIS AND CONCLUSIONS

Warfare appears to be developing in two opposite directions simultaneously. With the development of electronic controls for guided missiles, nuclear weapons, and nuclear power, we seem to be approaching the capacity to fight a push-button type of war. In this the major effort might go into preparation for a war in which the decision would rest on the relative ability to give and absorb devastating blows in the first few hours of a war. In such a war the logistic effort after the war began might well be in the relief and rehabilitation of the homeland and its industry.

At the other extreme there is the prospect of a continuance and intensification of a politico-economic-psychological cold war with overtones of guerrilla warfare, subversion, and sabotage. This would require the maintenance of large, modern, conventional military forces on a ready basis. It might not ever require their large-scale active participation. In any event, the demands of the economic war would require logistic efficiency to support any guerrilla type of warfare, and to create and support the larger forces standing by.

Somewhere between these two extremes lies the possibility that we might fight a conventional war of considerable scope and of great technological complication. This too would demand logistic efficiency to improve the combat effectiveness of our

engaged forces, to survive the simultaneous economic struggle, and at the same time to remain prepared for the explosion of an unlimited war.

An examination of the spectrum of conflict in the light of the events of the last ten years makes it increasingly evident that the United States must be prepared to use military force effectively throughout the entire spectrum. Also consideration of the nature and tools of modern conflict makes it further evident that this force must be used in harmony with the other elements of national power. We must be prepared for all types of conflict including wars, such as "brush fire," conventional, or unrestricted thermonuclear wars.

From this conclusion we can see the need to retain the large, modern, conventional forces already mentioned. However, the balance of logistic forces and combat forces is one that requires careful study and evaluation. In the past it has been the policy to reduce the logistic force in order to maintain a larger combat force. It has been accepted that the build up of logistic support forces is easier than the build up of combat forces. However, the complexity of today's weapons and other equipment makes the training of supporting technicians a critical factor. In the initial stages of a sudden war, emergency conversions are of little help. At this time fully trained and equipped logistic forces must be available, properly disposed, and in adequate numbers to render immediate sustained support to the combat forces in being.

It is therefore concluded that in the structuring of our operating forces, it is essential that the logistic support forces be created with the correct phasing relative to the combat forces they will support. In many cases the logistic forces should be created first.

Even with this, perfect responsiveness can not be expected. A point of danger is that the support system itself may be geared too closely to peacetime operations; and that it may not be either technically or organizationally prepared for the very great changes that war brings. An example of this is the need for properly organized oversea bases and lines of communication that are properly established. This is illustrated by the backlog of shipping which results when the oversea area cannot absorb the incoming material and personnel. Where the bases or the extending lines of communication are inadequate, the entire flow of support becomes unbalanced and out of phase with requirements. The inability to absorb the incoming flow usually results in adopting the practice of "selective unloading." This in turn reduces the efficiency of the entire unloading process which causes further congestion. In the meantime, ships on the high seas must continue their voyages to the congested ports because they are carrying urgently needed material. The concentration of shipping in these congested port areas presents the enemy with a lucrative target and increases the risk of loss by enemy action.

Sustained operations always require a buildup. This holds for each operation conducted by the Army, Navy, Air Force or joint or combined commands. For example, even with their large storage capacity, modern ships cannot sustain offensive operations of major proportions without replenishment from stocks prepositioned in the whole logistic chain running from the underway replenishment groups through the mobile support forces, back to advance and continental bases.

The buildup constitutes, in effect, a pipeline with major storage tanks and with "surge tanks" to take care of fluctuations. Material is moving through this pipeline system with such real momentum that it is impossible to reverse the flow and difficult to change its rate or direction. Any capability to change its rate or direction will depend on having ample vacant space in the "surge tanks" and a positive, accurate, and rapid system of logistic control and communication.

If the control system does not work, the momentum of the personnel and material in the pipeline is such that it continues to flow regardless of need or of high command orders. The excess spills out of the end of the pipeline in the combat zone and creates problems. The excess becomes a burden to the combat forces by reducing their mobility and flexibility, and reduces combat and support effectiveness which extends all through the system of transport and storage.

From this analysis it is concluded that logistic plans are so vital--so ambient--so all-pervasive, that they can be considered the common denominator of all plans. If any military plan is to be realistic, logistic considerations and logistic plans must be interwoven with national, strategic, and tactical plans at all levels of command. This is especially true in developing operations plans requiring the employment of ground forces in the underdeveloped areas of the world.

Military operations in the underdeveloped areas are usually complex and most difficult to plan for. The physical features, climate, and weather of the specific area will affect the organization and composition of the military force and the manner in which it is employed. The size, composition, organization, and equipment of the force is affected by the size and configuration of the area, which may vary from an island or archipelago to a large continental land mass. Closely allied to size and configuration are the resources available within the area, the existing roads, rail systems, port facilities, and airfields, and the length of the lines of communications to be used or constructed.

The local population within the area of operations may exert considerable influence upon the operational environment. Its attitudes, actions, and capabilities may facilitate or hinder military operations. Additionally, the requirements of the local population for food, medical support, and assistance in rehabilitating the local government and reestablishing municipal operations,

such as water supply, sanitation, and power, may require military effort that would otherwise be available for support of combat operations. Where the population is actively sympathetic to the enemy, it may be necessary to divert a significant number of combat troops to rear area security.

National policies behind the military operation may be tempered by international coalitions, alliances, and agreements, and by the additional influence of opinions and attitudes of neutralist nations. These influences may be reflected in confinement of the area of operations, in limitations of military objectives, or in restrictions in the employment of certain weapons.

It is therefore concluded that combat operations in the underdeveloped areas can be expected to be characterized by both organizational and geographical decentralization. This will require an adjustment in logistic planning factors, basic loads, stockage levels, issue procedures, and the disposition of logistic support activities.

Military operations in the underdeveloped areas require detailed planning, a careful logistic estimate, and a feasibility test. Because of the present capability for rapid decision at the national level and the ability to lift combat forces quickly into an objective area, either from a location in the United States or from bases outside the United States, logistical support requirements must be capable of rapid calculation and early fulfillment. If the logistic feasibility test indicates the operation cannot be

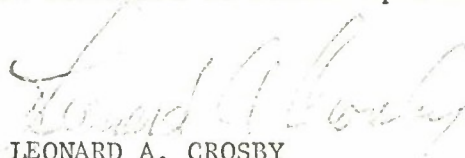
supported, the tactical plan must either be changed or the commander must thoroughly appreciate the risk he will take. To avoid such circumstances, a ready logistic force in being and available for rapid deployment is required.

In looking to the future we can expect a continuation of the present "cold war" conflict for an indefinite period of perhaps five years, perhaps fifty or more years. No one is wise enough to know. All the forces which influence the situation are variable and as they increase or decrease in intensity the situation will change. The accurate measurement of the situation and its precise evaluation are beyond the reach of any science.

Regardless of the conflict situation in the future, strategic flexibility and mobility can only be based on a logistic foundation. Therefore, if a commander is to establish flexible concepts and exploit opportunities, he must have adequate control over his logistic support. The understanding of the nature and degree of logistic control which commanders at various levels should exercise over their logistic support is essential to the attainment of combat effectiveness in war.

It is self-evident that the practical application of a strategic concept requires very specific deployments and tactical operations. The study of ancient and modern wars and of current crises shows that these deployments and tactical operations must be preceded by specific logistic action. This consists first of an economic-logistic buildup to create the combat forces, and

second of the further very specific logistic deployment to support the tactical operations. This vital relationship requires that strategic, logistic, and tactical planning and control be completely integrated. Obviously, therefore, in order to support the combat requirements of strategy and tactics the objective of all logistic effort must be the attainment of sustained combat effectiveness. In a combat objective area the establishment of lines of communications becomes the lifelines to combat operations.


LEONARD A. CROSBY
Colonel MSC

BIBLIOGRAPHY

1. Adams, Paul D. "Strike Command." Military Review, Vol. 42, May 1962, pp. 2-10.

(An excellent article on the capabilities and organization of the US Strike Command by its Commanding General.)
2. "Assets or Liabilities?" The Cincinnati Enquirer, 13 Jul. 1960, p. 4.

(An editorial which concludes that bases are required even though they present problems. Good background material.)
3. Baldwin, Hanson W. "Debate on US Bases." New York Times, 7 Nov. 1962, p. 6.

(An excellent review of the US and Soviet nuclear retaliatory capability and its effects on the requirement for bases overseas.)
4. Baldwin, Hanson W. "Overseas Bases Keys to All US Strategy." New York Times, 17 Feb. 1957, p. E5.
5. Barber, Hollis W. The United States Alliance Strategy. Lecture. Newport: US Naval War College, 27 Sep. 1956. (NvWC L-B35)

(A thoughtful evaluation of the characteristics and need for alliances as an element of foreign policy.)
6. Barner, John H. An Alliance Strategy for the United States. Thesis. Carlisle Barracks: US Army War College, 10 Feb. 1961. (AWC IS 60/61)

(An excellent analysis of the US alliance system examining the characteristics, strengths and weaknesses.)
7. Black, Edwin F. Base Rights and National Sovereignty. (UA26 A6 B55)
8. Bradley, Omar N. Soldiers Story. New York: Popular Library, Jun. 1964. (D756 B7)

(Another outstanding book of action and decisions in World War II.)
9. Breed, L. C. Opinions and Reflections of Napoleon. Boston: The Four Seas Co., 1926. (DC214 A2 B7)

10. Bunker, William B. "The Importance of Transportation as a Function of the Logistics Equation," in National Defense Transportation Journal, Vol. XLII, Jan.-Feb. 1958.
11. Carter, Warrell R. Beans, Bullets and Black Oil. Washington: US GPO, 1953. (D769.537)

(An excellent book on the development of logistic support for the fleet during World War II.)
12. Claude, Inis L., Jr. "Regional Associations in the Contemporary World." Naval War College Review (U), Vol. XIII, Apr. 1961, pp. 15-36. FOR OFFICIAL USE ONLY
13. Clausewitz, Karl Von. On War. Washington: Infantry Journal Press, 1950. (U102 C65 1950)
14. Cline, Ray S. Washington Command Post: The Operations Division. United States Army in World War II: Office of the Chief of Military History. Washington: US Dept of the Army, 1951. (D769 A533 v.4)
15. Conant, Melvin A., Jr. Free World Alliances. Lecture. Newport: US Naval War College, 19 Jul. 1961. (NWC NSS 1961)

(A good description of the inherent problems in our alliance system with suggested procedures to eliminate them.)
16. Council on Foreign Relations. Alliances and American Security, ed. by Joseph Barber. New York: 1960. (JX1416 C78)

(A compilation of the considered views of 150 Council members on their reaction to the suitability of the US alliances.)
17. "Crumbling Alliances?" US News and World Report, Vol. L, 16 Jan. 1961, pp. 40-45.

(A somber reappraisal of our principal military alliances on the eve of a new administration.)
18. Davison, Michael. "Freedom from the Tyranny of Terrain." Army, Vol. 20, Nov. 1965.

(A good article on airmobile capabilities.)
19. Dissette, Edward F. "Overseas Bases - How Long for This World?" US Naval Institute Proceedings, Vol. 86, Jul. 1960, pp. 23-30.

(Suggests procedures which should be commenced in anticipation of a gradual reduction of oversea bases.)

20. Eccles, Henry E. Logistics in the National Defense, pp. 5-317.
21. Eden, Anthony. "The Slender Margin of Safety." Foreign Affairs, Vol. 39, Jan. 1961, pp. 165-173.

(A stimulating treatise on what action the West needs to take to bolster its alliance.)

22. Eisenhower, Dwight D. Crusade in Europe. New York: Doubleday, 1948. (D743 E35)

(Good background on the decisions made by a major commander in World War II.)

23. Eliot, George F. "How Much Forward? How Much Back?" Army, Vol. 9, Aug. 1958, pp. 18-23.

(An excellent article on the requirement for overseas deployment of forces backed up by a mobile, continental reserve.)

24. Establishment of Lines of Communications Across France 1950-1951 (U). US Army, Europe. Historical Report, Aug. 1952, p. 12. SECRET

25. Fall, Bernard B. Street Without Joy; Indochina at War, 1946-1954. Harrisburg: Stackpole, 1961. (DS550 F3)

(A detailed account of the French Indochina War with special treatment of the logistical successes and failures of both opponents. Very valuable to this treatise.)

26. Fall, Bernard B. The Viet Minh Regime. Ithica: Cornell University, Apr. 1954. (JQ831.5 F3)

(A discussion and account of political and military issues involved in the French Indochina War. Includes some interesting accounts of Viet Minh logistics support of military operations. Excellent background.)

27. Ferguson, Allen R. Air Force Logistics - Some Recent Developments. Memorandum RM 1817. Santa Monica: Rand Corporation, 5 Nov. 1956. (RAND 1817)

28. "Front and Center." Army, Vol. 16, Jan. 1966, p. 23.

(News item pertaining to offloading shipping in Vietnam.)

29. Furse, George. The Organization and Administration of the Lines of Communications. London: William Clowes and Sons, Ltd., 1894. (U168 A2 F8)

(A very old, but detailed, treatise on organizing and administering lines of communications. This book is particularly valuable for historical examples prior to 1890.)

30. Garvin, Crump. "Pitfalls of Logistics Planning." Army Information Digest, Vol. 16, Apr. 1962.

(An interesting account of logistic operations at the beginning of the conflict in Korea.)

31. Global Logistics and Strategy; US Army in World War II, pp. 8-435.

32. Harbord, James G. The American Army in France. Boston: Little, Brown and Co., 1936. (D570 H275)

(An account from the Commanding General of the US Army's first communications zone during World War II.)

33. Hoffman, Paul. "Spain Said to Get US Plan on Bases." New York Times, 19 Dec. 1963, p. 4.

(Authoritative account of the planned closure of the base at Zaragoza. Good background.)

34. Hoops, Townsend. "Overseas Bases in American Strategy." Foreign Affairs, Vol. 37, Oct. 1958, pp. 69-82.

(A worthwhile discussion of the need for oversea bases as a substitute for the policy of massive retaliation.)

35. Houston, James A. "Korea and Logistics." Military Review, Feb. 1957.

36. Irvin, Dallas D. "The French Discovery of Clausewitz and Napoleon," in The Journal of the American Military Institute, Vol. IV, Fall 1940, pp. 144-145.

37. Johns Hopkins University. Operations Research Office. Impact of Guerrilla Action on Logistics in Limited War (U), by Marcel Vigneras. Staff Paper ORO SP-172. Bethesda: May 1961. SECRET (OO ORO SP-172)

(Provides some astonishing facts and figures concerning logistical experiences in the French Indochina War and other military actions. Excellent background.)

38. Johns Hopkins University. Operations Research Office. Problems of Logistics Operations in Support of US Operations in Limited War Areas (U), by Scott Payne, Roswell B. Wing, Benjamin R. Baldwin, Marcel Vigneras, Angelo Giarratona and Carol C. Jacobson. Technical Memorandum ORO T-402. Bethesda: Jan. 1962. SECRET (OO ORO T-402)

(An excellent study of logistics problems that can be expected in limited war situations in four areas of the world. Concentrates on experience of the French Indochinese War. Excellent background.)

39. Johnson, Max S. "Why a Strong US Shows Weakness." US News and World Report, Vol. LIII, 8 Oct. 1962, pp. 49-54.

(A critical analysis of US military posture and national strategy.)

40. Johnson Research Associates. US Joint Task Force Operations to 1970, Jun. 1964. (JRA TR-64-1)

41. Kaufmann, William W. The McNamara Strategy, pp. 5-9.

42. Kissinger, Henry A. Nuclear Weapons and Foreign Policy. New York: Harper, 1957. (JX1416 K5 c.21)

43. Lincoln, L. J. "Logistics in the Atomic Era." Army Information Digest, Vol. 13, Jan. 1958.

(An old but excellent article on warfare of the future and the logistic support requirements. While this is an old article, its views are still current.)

44. Lowi, Theodore J. "Bases in Spain." American Civil-Military Decisions--A Book of Case Studies, ed. by Harold Stein. Birmingham: University of Alabama Press, 1963. (JX1416 S68)

(A picture of the Spanish Lobby in action and its efforts to bring into being the bilateral agreements between the US and Spain.)

45. Lubotnik, Rafael. "The Last Cavalry Charge." Military Review, Vol. XLVI, Jan. 1966, p. 18.

46. Lutes, Leroy. "Supply: World War II - The Flight to Europe in 1942." Antiaircraft Journal, Vol. 12, May-Jun. 1952.

(An excellent historical account of logistic struggles in early World War II with emphasis on the lack of appreciation of the logistics problems among the professional army officer.)

47. Magnolia, L. R., and Dunlap, A. K. "The Lunar Base: A Bibliography." Research Bibliography No. 48. STL Technical Library Advanced Research Group. Redondo Beach: Space Technology Laboratories, Inc., Aug. 1963. (TL799 M6 Z91)

(This bibliography consists of 240 references dealing with various aspects of the manned lunar base. The majority are those published in the period 1955 to June 1963.)

48. Magruder, Carter B. The Program of the Deputy Chief of Staff for Logistics. Staff Paper. Washington: 27 May 1959. (OO DA-G4 PROG)

(An old but valuable document outlining the logistics accomplishments, policies and objectives of the Deputy Chief of Staff for Logistics. Many of the objectives listed in 1958-1959 are still current today.)

49. Marsh, Kirt. Personal interview on current trends in logistics. Washington: 8 Dec. 1965.

50. Meadows, Thomas N. Overseas Bases - Their Value, Their Liability, and Their Replacement. Thesis. Montgomery: Air War College, Feb. 1961. (AF-AU AWC Th-M4)

(An excellent analysis of the value of oversea bases with a strong recommendation that the fleet be the principal second-strike force. Valuable reference to this thesis.)

51. Meyer, Norman. Personal interview on current trends in logistics. Washington: 8 Dec. 1965.

52. Norton, John. "Buildup Challenge in Viet Nam." Army, Vol. 15, Nov. 1965.

(An interesting account of the logistics problems in Vietnam brought on by the recent buildup.)

53. Osanka, Franklin Mark, ed. Modern Guerrilla Warfare, pp. 26-400.

54. Packman, Martin. "Future of Overseas Bases." Editorial Research Reports. Washington: Vol. 1, 1957, pp. 65-81. (H35 E3 1957)

(A good argument for the need for bases suggesting actual and potential problem areas. Valuable to this thesis.)

55. Palmer, Williston B. "Commanders Must Know Logistics." Army Information Digest, Vol. 8, Dec. 1954, pp. 3-14.

(An old but surprisingly accurate article on the problems of logistics, the need for officers highly trained in logistics, and the requirement for all commanders to understand and appreciate how the functions of logistics influence command decisions.)

56. Patterson, Douglas H. A Program for the Development of Officers as Logisticians. Thesis. Carlisle Barracks: US Army War College, 19 Mar. 1959. (AWC Log #59-3-109)

(A good review of the need for, and the recommended training of, officers as career logisticians.)

57. Rockefeller Brothers Fund, Inc. International Security - The Military Aspect. Report of Panel II. New York: Doubleday, 1958. (UA23 R6)

(The learned conclusions of a group of eminent Americans as to what the US should do to assure its security.)

58. Rostow, W. W. "The Role of Emerging Nations in World Politics." Department of State Bulletin, Vol. LII, 5 Apr. 1965, p. 493.

59. Rowen, Henry. "The Basic Issues of National Strategy." The Western Political Quarterly, Vol. XIII, Sep. 1960, pp. 42-44.

(Identifies major military objectives and the various views by which to implement them. Good background.)

60. Rowse, Arthur E. "Foreign Bases: Declining Assets." Editorial Research Reports. Washington: 14 Sep. 1960. (H35 E3 1960 v.2 Nr. 10)

(An excellent argument on the diminishing needs for overseas bases as a result of political pressure. Valuable for this thesis.)

61. Russell, Kendall. "Strategic Missiles and Basing Concepts." Air University Quarterly Review, Vol. XIII, Spring 1962, pp. 68-82.

(An argument for the Minuteman. Background value.)

62. Silverthorn, Merwin H. Defense of the Free World: An Analysis of the United States Military Contribution. Thesis. Carlisle Barracks: US Army War College, 8 Mar. 1963. (AWC Log #63-3-173U)

(An excellent document covering military alliances, overseas deployments, military assistance programs, strategic reserves, and use of overseas bases to support combat operations. This thesis was very valuable to this paper.)

63. Slim, William. Defeat into Victory. New York: McKay, 1961.
(D767.6 S55 1961)

(This book is an account of the British campaign in Burma during World War II. Some unique logistical problems were faced by the British in this area and they are clearly and interestingly described. Very valuable background material.)

64. Stevens, Robert T. "Statement on Deputy Chief of Staff for Logistics." Army-Navy-Air Force Journal, Vol. 91, 3 Jul. 1954, p. 1335.

(A statement of background leading to reorganization of the army and establishment of the Deputy Chief of Staff for Logistics. Good background.)

65. "The Army in 1962." Army Information Digest, Vol. 13, Jan.-Feb. 1958, entire issues.

66. "The New Role of Amphibious Power - Amphibious Warfare in the Nuclear Age." Army Information Digest, Vol. 16, Jul. 1961, pp. 18-20.

67. US Armed Forces Staff College. "Base Development for Joint Forces." AFSC Pub 6. Norfolk: Aug. 1964.

(Author's personal file (see AFSC BD).)

68. US Armed Forces Staff College. "Shore Parties." AFSC Pub 6. Norfolk: 1959. (O AFSC SP)

(Author's personal file.)

69. US Army. Combat Service Support Group. Logistics Training: Officer, Warrant Officer and Enlisted Man Training. Specialized. Phase II. Project 63-1. Fort Lee: 1 Aug. 1962. (ACMC LT-Ph II)

(Describes projected logistics training requirements for officers, warrant officers and enlisted men.)

70. US Army. Continental Army Command. Special Warfare Board. A Study to Inquire into All Aspects of Special Warfare Operations (U). Final Report. Fort Bragg: 28 Jun. 1962.
SECRET (OO CONARC SWB SWO)

(Includes examples of logistical failures and future requirements.)

71. US Army. Logistics Management Center. Information Manual. Fort Lee: Sep. 1965.

(Author's personal file.)
72. US Army. Logistics Management Center. Logistics Training: Individual Officer Training. Generalized. Phase I. Project 11-2. Fort Lee: 1 Mar. 1962. (ALMC LT-Ph I)
73. US Army. Special Warfare School. Lesson Plan: Logistical Support of Counterinsurgency Operations. Fort Bragg: nd.
74. US Army. Tactical Mobility Requirements Board. Special Warfare Concepts and Requirements (U). Fort Bragg: 31 Jul. 1962. SECRET (OO DA TMRB FR Anx J)

(A thorough examination of not only mobility requirements for special warfare concepts but requirements for special materiel developments as well.)
75. US Army Command and General Staff College. Combat Service to the Army--COSTAR (U). Fort Leavenworth: Feb. 1962. FOR OFFICIAL USE ONLY (CGSC CO-STAR II) (ARMY CDC CSSG CO-STAR)
76. US Army Command and General Staff College. Reference Book: Navy-Marine Corps. RB: 110-2. Fort Leavenworth: Jun. 1962.

(Author's personal file.)
77. United States Army, Europe. Historical Division. Establishment of Communications Through France (U). SECRET (OO USAREUR HD LOCA)
78. US Army XVIII Airborne Corps. Stability Operations Dominican Republic, Vol. IV, Pt. 1, 31 Aug. 1965, pp. 2-5.
79. US Army War College. Army Logistics Training, by Lt Col W. C. Besse. Student Individual Study. Carlisle Barracks: 15 Mar. 1955. (AWC Log #55-3-12U)
80. US Army War College. Strategic Implications of the Developing Areas, Directive, Course 4, p. 15.
81. "US Bases in Britain." The World Today, Vol. 16, Aug. 1960, pp. 319-325.

(A good background on the development of the US-UK agreement on air bases in UK.)

82. US Dept of Defense. Joint Chiefs of Staff. "Joint Logistics and Personnel Policy and Guidance." JCS Pub 3. Washington: Dec. 1961.
83. US Dept of Defense. Strategic Mobility Work Project: Strategic Movement Capabilities Plan - End FY 1965 to End FY 1969 (Short Title: MOVECAP 65-69) (U). Washington: Sep. 1964. SECRET (OO DD SMWP I-A)

(For final plan see TO3456.)

84. US Dept of State. American Foreign Policy 1950-1955. Basic Documents. Washington: US GPO, Vols. I and II, Jul. 1957. (JX1416 A631 1950-1955)

(An excellent reference source for documents of historical interest.)

85. US Dept of the Army. Army Regulations 320-5: Dictionary of United States Army Terms (Short Title: AD). Washington: Apr. 1965.
86. US Dept of the Army. Army Regulations 750-6: Maintenance Support Planning, 21 Aug. 1964, p. 2.
87. US Dept of the Army. DA Pamphlet 600-3: Career Planning for Army Officers. Washington: 1956.
88. US Dept of the Army. DA Pamphlet 690-80: Administration of Foreign Labor During Hostilities, 9 Jul. 1963, p. 75.
89. US Dept of the Army. Field Manual 8-10: Medical Service, Theater of Operations, 12 Nov. 1964, pp. 105-115.
90. US Dept of the Army. Field Manual 9-1: Ordnance Service in the Field, Jun. 1959, p. 32.
91. US Dept of the Army. Field Manual 11-20: Signal Operations, Theater of Operations, Apr. 1962, p. 85.
92. US Dept of the Army. Field Manual 54-2: Division Logistics and the Support Command. Washington: 20 Dec. 1961.

(Establishes doctrine and guidance for logistical support within the division and for the employment of the division support command.)

93. US Dept of the Army. Field Manual 100-5: Field Service Regulations, Operations, 19 Feb. 1962, pp. 155-159.
94. US Dept of the Army. Field Manual 100-10: Field Service Regulations, Administration, 9 Jul. 1963, pp. 45-49.
95. US Dept of the Army. Field Manual 101-10: Organizational, Technical and Logistical Data. Washington: Jan. 1965.
96. US Dept of the Army. Global Logistics and Strategy. US Army in World War II: Office of the Chief of Military History. Washington: 1955. (D769 A533 v.3)
97. US Dept of the Army. Materiel Requirements Review Committee: Study of Army Ground Vehicular Requirements. Phase I. Requirements for Counterinsurgency Operations (U). Washington: 1 Sep. 1962. CONFIDENTIAL (ODA MRRC AG VR Ph I)
- (A thorough examination of ground vehicular requirements for counterinsurgency and actions necessary to satisfy the demands.)
98. US Dept of the Army. Officer Personnel Directorate. Logistics Officer Program Newsletter, 3 Jan. 1966.
- (A newsletter periodically sent to all participants in the Logistics Officer Career Field.)
99. US Dept of the Army. The Secretary of the Army's Plan for Army Organization. Washington: 14 Jun. 1954. (UA24 A7 1954)
100. US Specified Command, Middle East. After Action Report, 15 July 1958 - 25 October 1958, Pt. I, Sec. I, pp. 2-11, Pt. II, Sec. II, pp. 1-11.
101. Weller, George. Bases Overseas. New York: Harcourt, Bruce, 1944. (UA23 W37)
- (An excellent argument for oversea bases. Describes our neglect in obtaining bases in the past and our apathy to acquire them in the future. A valuable reference.)
102. "Where US Bases are in Danger." US News and World Report, Vol. XLIX, 4 Jul. 1960, pp. 37-39.
- (Good background on US bases.)

103. Wohlstetter, Albert J. "The Delicate Balance of Terror." Foreign Affairs, Vol. 37, Jan. 1959, pp. 211-234.

(Excellent analysis of the problems concerned with maintaining our bases overseas during the decade of the '60's.)

104. Wohlstetter, Albert J. "The Importance of Overseas Bases." Air Force and Space Digest, Vol. 43, May 1960, pp. 73-80.

(A rebuttal to Major General Dale O. Smith's argument on the value of bases. Good for background.)